SEPTEMBER 1935

SOAP

SOAPS • INSECTICIDES • DISINFECTANTS • CLEANERS • POLISHES • SANITARY SUPPLIES • EXTERMINATING

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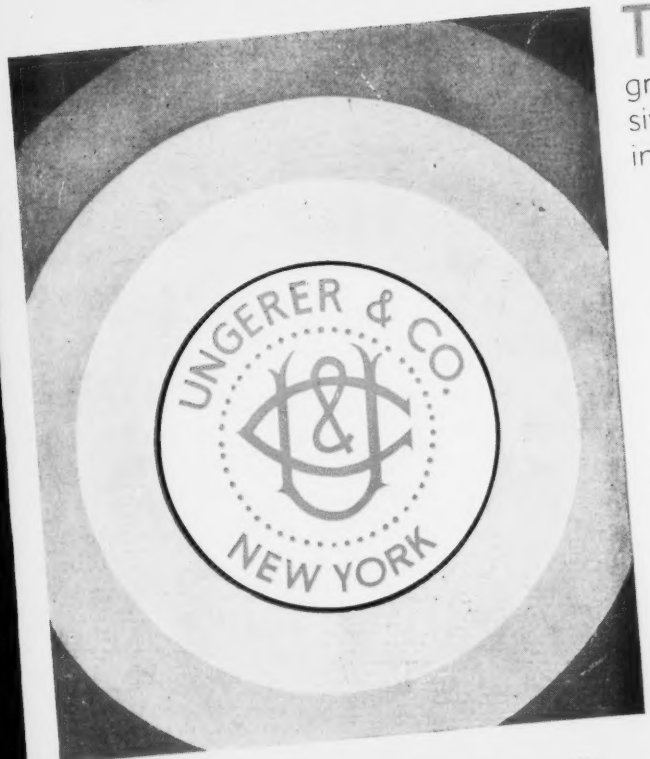

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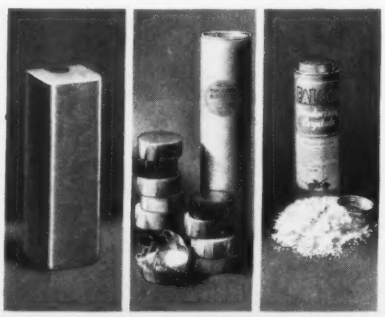

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SOAP

Reg. U. S. Patent Office

Volume XI
Number 9

September, 1935

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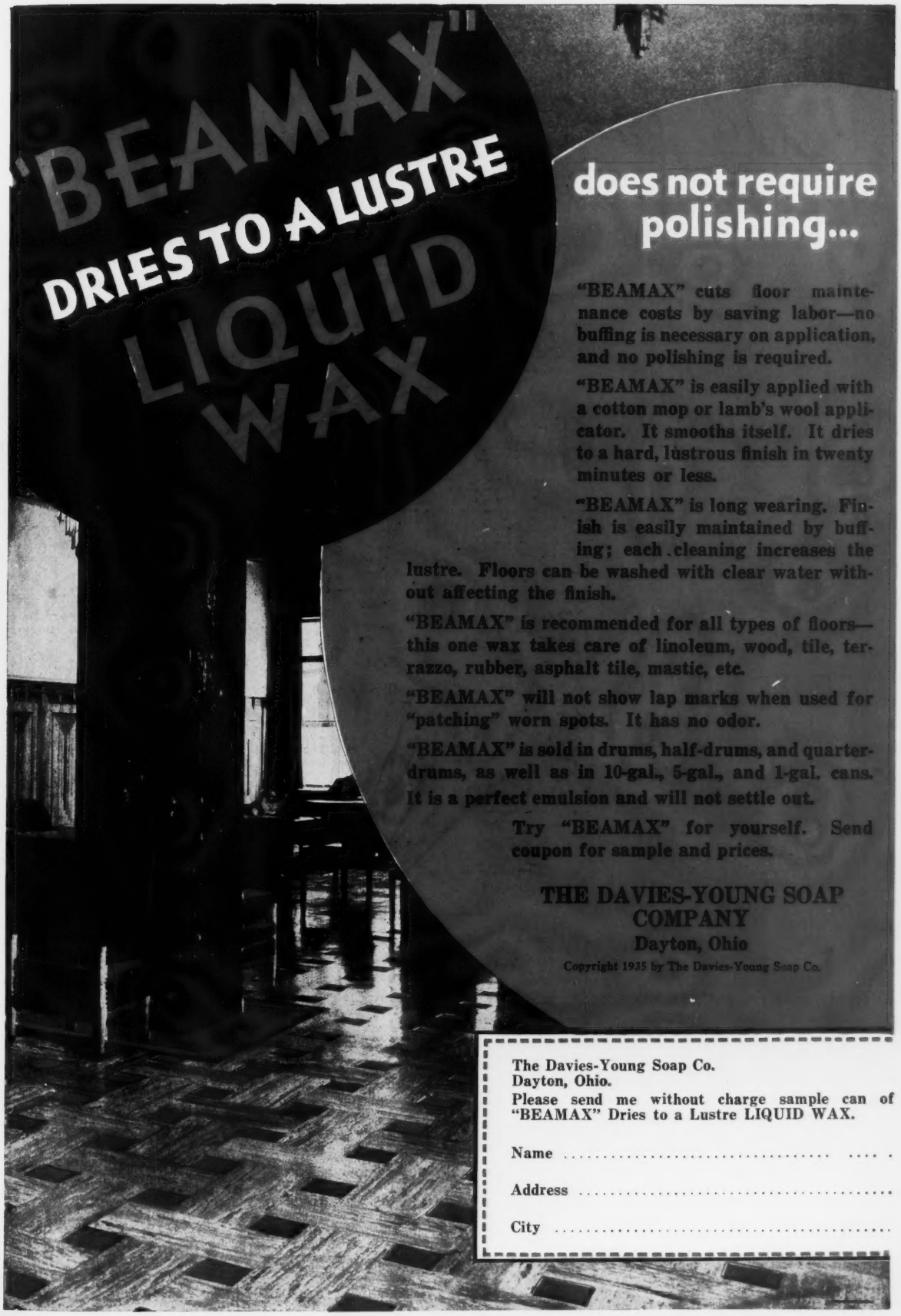

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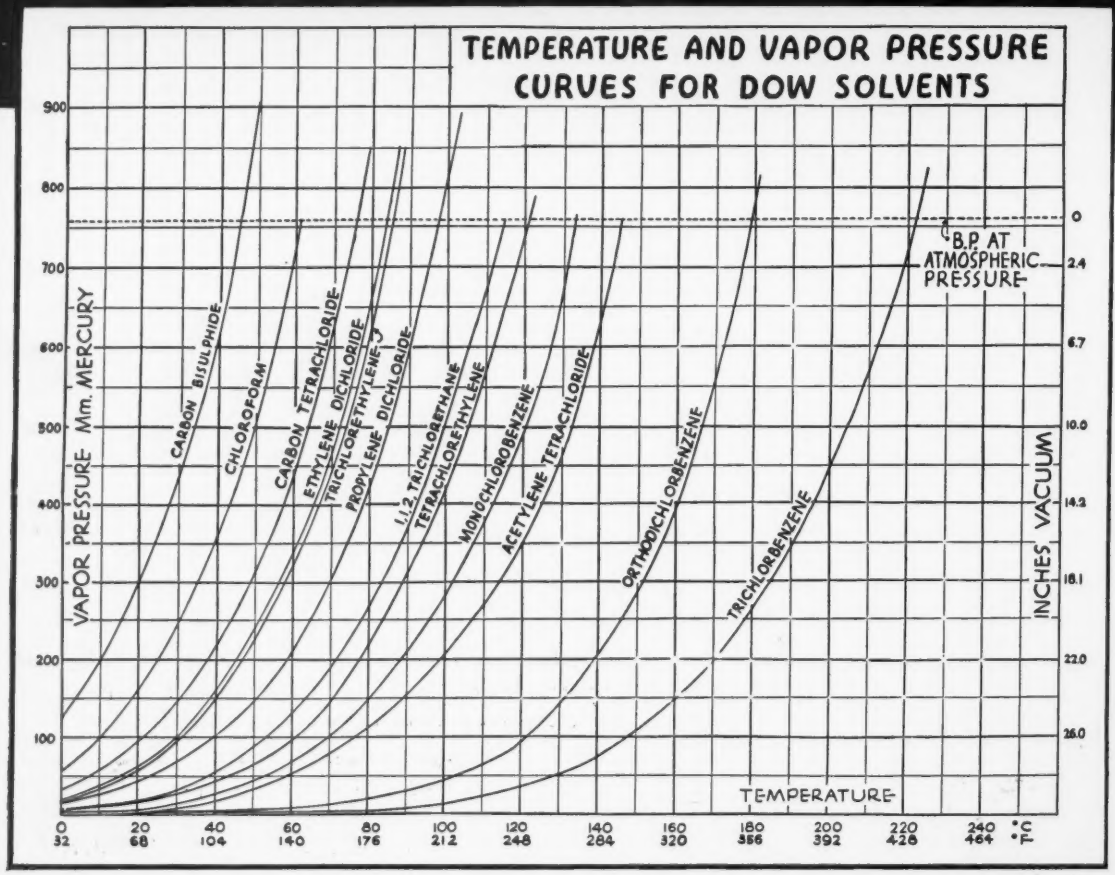

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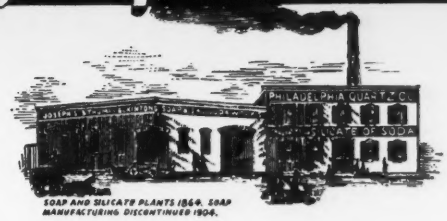

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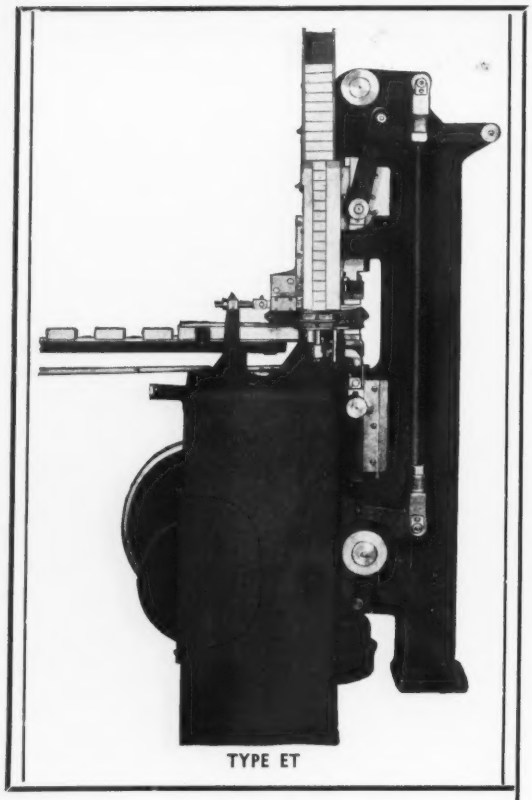

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SOAP

Volume Eleven **Number Nine**

As the Editor Sees It . . . .

AN import duty equivalent to the tax which an American manufacturer of soaps or fatty acids would pay in the form of the three-cent excise tax, was levied against imported soaps and fatty acids by Congress in a last-minute amendment to the Revenue Act of 1935. The new law becomes effective late this month. It terms the duty a "compensatory tax",—a tax designed to compensate for the three-cent excise tax on coconut, palm, and other imported oils which American soap manufacturers and other "processors" have been paying since May, 1934. Thus imported fatty acids, made abroad from taxable oils, pay duty at the rate of three-cents per pound on the oil from which they were made. The same is true of imported soaps.

The new law will quite effectively shut out imported fatty acids which have been brought into the United States in very considerable tonnage during the past year. It will probably make little material difference in finished soap imports. Its effects in other directions in the oil and fat markets may be quite far-reaching, especially on the splitting of fats abroad for the American consumer. Tallow appears to remain alone as the one important soap fat which can be imported without a stiff penalty, the duty on edible tallow still being one cent and on inedible a half-cent.

This new duty will place a greater premium on the by-products of domestic oil and fat production for use in the soap kettle. Fatty acids, foots, soap stock, and lower grade greases, much in demand since the three-cent excise tax was adopted, should be more sought after than ever by soapers. Manufacturers of soap powders, auto soaps, scrub soaps, and other users of the cheaper fatty raw materials, are likely to feel the effects most. Domestic fat splitting and refining should be further stimulated. And those soapers who are in a position to refine low grade fats to meet their needs will be in a distinctly advantageous competitive position in dodging both the direct and indirect penalties of this new legislation on fat and oil consumers.

—— ♦ ——

HIGH prices invariably encourage the development of substitutes. Coconut oil has been no exception to this rule thus far in 1935. The generally higher levels of coconut prices have sent consumers searching hither and yon for oil and fats to take the place of this most important soap oil. That the high prices have been due chiefly to the three-cent excise tax is of no moment to the consumer. He is ever anxious to buy something just as good at a lower price irrespective of the cause of the high price of his favorite oil. But to find something "just as good" as coconut oil is a rather large order. So the consumer has to be content, if he would replace coconut with something else, with an array of various and sundry substitutes which may or may not fill the bill.

Palm kernel oil has been of no help to the soap maker because it is also taxed at three cents. Domestic fatty acids of one kind and another from non-taxable oils, and also rather large quantities of imported fatty acids have come to play a more important part in the American fat trade. But as a direct substitute for coconut oil, we have heard more and more about babassu oil during recent months. Tucum oil, generally unknown six months ago, is also being offered as the equivalent of coconut.

Both have the advantage of being free of any excise tax and of resembling coconut oil in composition. Both are being crushed on the eastern seaboard from imported nuts and being sold slightly under the prices for Manila coconut oil. However, the difference in price does not appear to be sufficient to encourage any great interest among consumers. In view of the limited supplies available today, this is probably altogether satisfactory to the crushers.

The present situation in coconut oil may permit these oils to gain a foothold as soap raw materials which was not possible a few years ago. To the soap industry, a large tonnage production of a direct substitute for coconut oil would undoubtedly be welcome. However, with the present world set up in coconut oil production, the development of babassu or some similar oil on a large scale would be encompassed by great economic difficulties.

—♦—

ANOTHER session of Congress has gone by and still the Copeland Food and Drug Bill has not been passed. Much amended and rewritten to meet this and that objection, the bill was in and out of committees in both houses like a cuckoo on a clock. When it appeared that all objections had been met and all parties were satisfied, including Government departments and industry, up bobbed another group in the patent medicine field to block passage once more. And there it ended when Congress adjourned. As far as the soap and sanitary products industries are concerned, the final bill was reported to be on the whole acceptable. Now it goes over to the next session of Congress with all the hearings, debates, and a thousand and one things to be done over again. Many are the shortcomings of democracy.

—♦—

AN attack on the constitutionality of the excise tax on Philippine coconut oil is reported planned by some of the larger soap manufacturers. The point to be attacked, it is understood, is the previously mentioned weakness in the law which calls for paying back to the Philippine treasury the full amount collected from the tax on coconut oil from the Philippines. The soapers are to claim that as the tax is not levied for general public benefit, but is returned to the Philippines, it is not a true tax and is therefore unconstitutional. An attack on some of the definitions of the Bureau of Internal Revenue in its regulations for tax collection, is also being planned, especially as what does and does not constitute "processing." As to the constitutionality of the repayment of the tax to the Philippines, we are not in a position to judge. But as to the character of the definitions and regulations as issued, we see some of them as altogether arbitrary and directly at variance with accepted definitions and common usage. They seem to have been written chiefly and solely to squeeze the last dollar out of this tax and with very little consideration of the intent of Congress when it passed the law.

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ITALIAN interests are reported to be heavy buyers of tallow in all markets. A rather large lot of Australian tallow, held on option in the United States, was snapped up early this month for supposed shipment to Italy. At the same time, a sale of five-thousand tons of fatty acids is reported to have been made abroad for shipment to an American soaper. However Italy does not want fatty acids, but glycerine. And the American soaper wants the fatty acids, —duty free and free of excise tax,—which will be the case if they get here before the new duty goes into effect late this month,—which is doubtful. Rumor has it that the purchase was made on that basis. Why not split the tallow for the Italians, ship them the glycerine, and simplify matters?

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THE problem of the processing tax on coconut oil and other imported vegetable oils still remains, says the Association of American Soap & Glycerine Producers, in discussing some of the legislation of the recent Congress. Support, however, for the Guffey-Dockweiler Bill which proposes the removal of the excise tax from Philippine coconut oil when denatured so as to be unfit for food, appears to be growing, the Association states. The practical proposal is then offered that members of the soap industry take advantage of the present recess in Congress to meet their representatives at home and discuss the merits of this bill with them so that it may receive favorable consideration when Congress next meets. This is unquestionably the practical manner for the industry at large to aid those who are carrying on the fight in Washington.

COCONUT OIL

By MARGARET J. HAUSMAN

COCONUT oil is the most important and most widely used vegetable oil in the soap industry. It has been known for untold centuries, and it appears that even the most primitive of peoples were early aware of the value of a product that they no doubt hit upon by accident. Coconut trees, or coconut palms, grow along the coast lines of practically all of the tropical regions, and form large forests particularly in Ceylon, Java, Sumatra, the Philippines, and the South Sea Islands. Coconut trees flower when they are about six or seven years old and begin to bear fruit fully when they have become eight or ten years old. Their fertility is then retained until the age of sixty years, and sometimes, under very favorable conditions, until the age of one hundred years. The coconut palm, when in full vigor, produces about sixty nuts a year.

Since earliest times, the kernels of the nuts from these palms have been used by South Sea Island natives, and by the natives of India, especially in the Madras presidency, as one of their chief articles of food. And it well might be that some aborigine, ruminating his meal of coconuts one sunny day chanced to see oil run off a piece of broken kernel lying at his feet, and was moved by the adventure of collecting it. Today the world is doing him greater and greater honor, as the production and consumption of coconut oil is increased. The present-day production averages well over a billion pounds a year.

And so it came about that natives of the tropics cut the kernels into small pieces and exposed them to the sun, which caused a spontaneous liberation of oil. Gradually, improvements on methods began to appear, and after a time, the kernels were converted into a pulp and placed in perforated vessels. The pulp was then exposed to the sun, and the oil that ran through the perforations was collected and carried to market. As a matter of fact, this method is still used, or has been practised until recently in some primitive regions.

Eventually, it dawned upon these early manufacturers of coconut oil that they could not afford to be left at the mercy of the seasons, and they conceived the idea of placing the coconut kernels on hurdles formed from bamboo staves and coconut leaves, drying the kernels over a slow fire, then pounding and pressing them in some improvised apparatus. This procedure enabled the natives to go on with their production of coconut oil even in the rainy seasons. In India, where coconut oil attained great importance as a food and pharmaceutical

agent, still better methods were developed. The nuts were split in half by a blow with a sharp instrument, the milk being poured off, and the halves were exposed to the sun to dry, the kernels thus becoming easily detachable from the shell. The dried kernels were then ground and expressed. It was discovered that the kernels could be preserved for some time by drying them thoroughly, this preventing rancidity and fungus growth. Still better methods were developed, notable among which was the process of throwing the kernels into boiling water and skimming off the oil. The mass remaining in the vessels found utilization as a cattle food and was known as coconut "poonac." This process was originally carried out with special care by the natives of Cochin, in Indo-China, where the Cochin grade of oil was first produced.

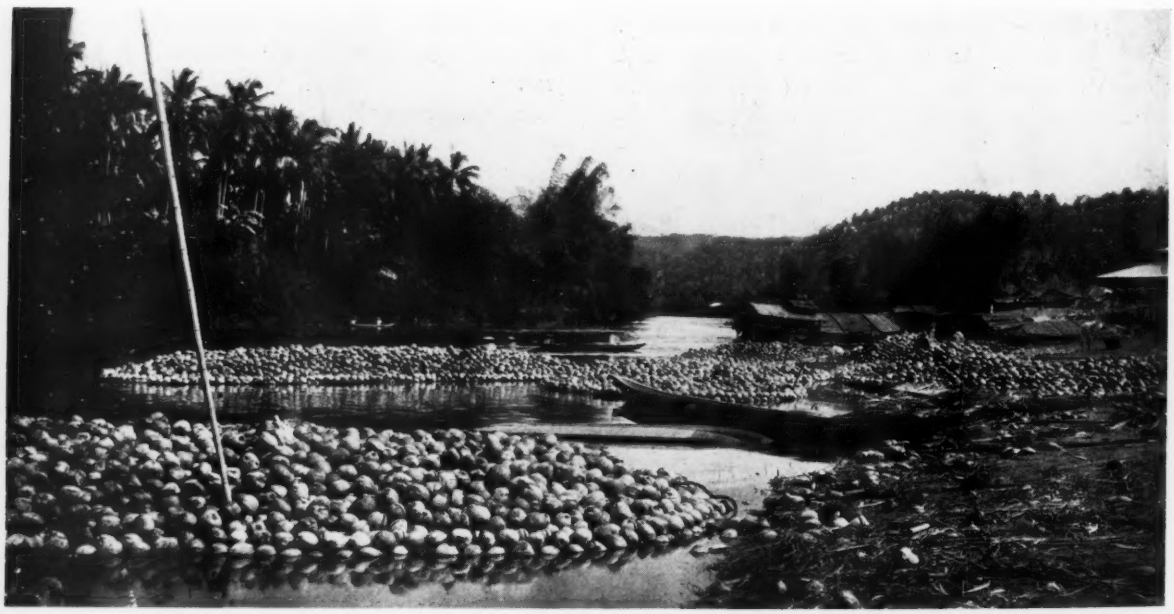
In the American market today, there are three main qualities of coconut oil,—Cochin type, Ceylon type, and Manila crude. Although all of these oils, or the copra from which they are crushed, are today coming from the Philippines, they carry quality and type designations which date back to the time when oils from Ceylon and Cochin were actually shipped to this market. With the present excise tax and import duties, it is impossible to import into the United States any except Philippine coconut oil. Even before the present three-cent excise tax became effective last year, the bulk of coconut oil consumed in the United States came from the Philippines. Therefore, designations such as Ceylon, Cochin, Manila, merely indicate the type and quality of Philippine oil which is being offered. And the quality of the various lots depends to a great extent upon the quality of the copra from which it is made, age and exposure of the oil.

Cochin type oil is the finest and whitest quality. It is generally snow-white and almost neutral, and is the type used in foodstuffs, and the best toilet soaps and shampoos. As described above, a considerable quantity of Cochin oil was made originally by boiling with water and subsequently skimming off the oil. The fine quality of this oil was due to the freshness of the kernels, the oil so obtained remaining for only a short time exposed to the air in contact with the putrescible matter of the kernel, and, therefore, containing only a very small amount of free fatty acids. A considerable quantity of Cochin oil was also prepared in crude native mills by expression, but in more recent times, modern plants have been installed in tropical regions. Today, the term, Cochin, is used as a class name for the best oil, rather than for the place of origin.

The second grade of coconut oil, the Ceylon oil, is somewhat darker in color than Cochin, and rather more acid. It is the coconut oil used for the manufacture of ordinary toilet soaps, liquid soaps, etc. The differences in quality that originally existed between Cochin and Ceylon oils were due to climatic differences and differences in the care exercised in the manufacturing process. The crude oils are still darker than the Ceylon grade in color, and often contain large amounts of free fatty acids. This oil is employed in the manufacture of household soaps.

The New York Produce Exchange defines the following grades and types of coconut oil[1]:

Cochin type, which shall not contain more than 3 per cent free fatty acids and not more than 0.5 per cent of moisture and impurities, and have a color not deeper than 12 yellow and 2 red, with an allowance for not more than 1 per cent of moisture and impurities.



Coconuts are bound together with ropes and nets to form rafts for floating down rivers to the seacoast where they become copra and go to the oil mills.

Coconut oil being pumped from tank barges to tank steamer in Manila harbor for shipment to the U. S. The barges collect the oil from the mills, an economic means of handling, also necessitated by lack of dock accommodations for the steamers.

Ceylon type, which shall not contain more than 7 per cent free fatty acids and not more than 0.5 per cent of moisture and impurities, and have a color not deeper than 30 yellow and 5 red, with an allowance for not more than 1 per cent of moisture and impurities.

Prime crude coconut oil, which shall be free from water and settlings and shall refine to a color not deeper than the combined standard 30 yellow and 3.0 red, with a loss not to exceed 10 per cent with the use of caustic soda.

Crude coconut oil which is tendered on the basis of prime contract and which may be rejected if by the official refining method it refines to a color darker than the combined standard 50 yellow and 8.0 red. An allowance is made for refining loss over 10 per cent.

Coconut oil basis 5 per cent free fatty acid, with a maximum of 7 per cent free fatty acid, which shall be fair average quality of the season of the country in which it is pressed, and shall be sold on basis of 5 per cent free fatty acid, 1 per cent moisture and impurities, with an allowance for oils not over 7 per cent free fatty acid.

Coconut oil, basis fair average quality crude, which shall be fair average quality of the season of the country in which it is pressed, and shall be sold on basis of 5 per cent free fatty acid and moisture and impurities not to exceed 1 per cent, with allowances for any oil that tests over 5 per cent fatty acid, providing that the oil is merchantable. When oil is offered under this grade, country of origin must be specified.

COPRA is the dried kernel or "meat" of the coconut, and should only be prepared from fully ripe nuts. The conversion of the kernel into copra is not only a convenient method of reducing the cost of freight, but is especially a process for preserving the oil as far as possible. The earliest process of preparing copra consisted in exposing the broken kernel to the sun, thus allowing most of the moisture to evaporate. It is also prepared by drying the pieces of coconut on bamboo grills over fires made from the husks and shells, but this product is usually poorly dried and badly smoked, thus yielding oil of inferior quality. When the climate permits, the method of sun-drying is to be preferred above the others, as, when properly conducted, it produces an excellent product. At present, improved methods of drying copra in kilns are being used. The moisture of the copra should be at least less than eight per cent or else the oil will deteriorate. In addition to the sun-drying and kiln-drying methods of preparing copra, there is a sulfur dioxide treatment. Hot air drying is employed to some extent.

Fresh coconut contains 30 to 40 per cent of oil and fifty of water, while copra usually contains from 60 to 65 per cent, but some kiln-dried copra contains over 70 per cent of oil. The yield of copra from the fresh kernels is 60 to 65 per cent. Formerly, the copra was all exported from the tropics, but in recent years increasing quantities are being crushed locally. The lack of a demand for a press cake has held back to some extent the large-scale production of the oil in many parts of the tropics.

For the expression of the oil from the copra, two pressings are made, neither being made cold, but at a temperature of 55 to 60° C. The copra is first ground, heated, and pressed in oil expellers, then the press cake is ground, heated, and pressed again in hydraulic presses at a pressure of from four thousand to five thousand pounds per square inch. The oil from the two pressings is combined and sent to the refinery. The press cake contains about six or ten per cent of oil and is sold as cattle feed.

COCONUT oil is refined by the caustic soda process, no more than 0.2 per cent of alkali in excess of that required to neutralize the free fatty acids of the soap stock being employed. Sometimes salt is added to the caustic soda solution to facilitate the separation of the soap stock, but great care must be taken to prevent undue saponification of the neutral oil. After

the oil has been removed from the refining kettle, it must be washed with warm water to remove the remainder of the soap stock. The neutralized oil is dried in a vacuum drier at atmospheric pressure in an open kettle, heated by steam coils, then bleached while hot by agitation with activated carbon and fuller's earth. By treating crude coconut oil with adsorptive carbon in the cold, the neutralizing loss has been reduced considerably. The bleaching agents are then removed, and, unless the oil is to be stored for some time, it is deodorized at once in a high vacuum deodorizer with superheated steam.

Some refiners "winter" the coconut oil and use the separated stearine as coconut butter or "chocolate fats" in confectionery. One of the chief uses of refined oil and coconut stearine outside of the soap kettle is in the manufacture of vegetable margarines. A number of patents have been taken out on varied uses of coconut oil, such as use as a solvent for ozone and for batching jute. It is also used as a fuel in tropical countries, and can be employed in the manufacture of a sulfonated oil similar to Turkey red oil.

In addition to the many uses which have already been found, and are still being found, there are numerous by-products from the coconut itself,—products like brushes, mats, and coarse cloth, which are made from the fiber, and a particularly useful charcoal which can be made from the shells. Some work has also been done on the production of paper from the fiber of the coconut.

COCONUT oil, as we are familiar with it in our climate, is a solid hard fat, with a bland taste, and characteristic odor. Coconut oils that have been properly prepared and refined have excellent keeping qualities. It used to be thought that coconut oil went rancid very readily, but this was due to carelessness involved in the preparation of the oil, consequent extensive free fatty acidity, and products of rancidity that followed from the presence of free fatty acids. Impurities still remained after fatty acids had been removed, owing to the action of fungi and enzymes on the putrescible matter of the kernels, and caused hydrolysis and subsequent rancidity of the oil on keeping. Impurities of this sort are said to be removed by the refinement of the oil with one per cent concentrated sulfuric acid. Rancidity has been removed completely from coconut oil by the use of clay, either by simple agitation of the oil with the clay, or by boiling it with an aqueous colloidal suspension of clay, or by the use of clay with superheated steam under reduced pressure. Coconut oil is seldom now adulterated and any adulteration can usually be detected easily. There is no color or other specific chemical test for coconut oil, but Polenske, saponification, and iodine values will usually show up adulteration.

The oils high in free fatty acids are sold for soap-making purposes after first being boiled up with water and filtered. By virtue of its high content of lauric acid as well as certain volatile acids, coconut oil has a high saponification value and is to be preferred above other vegetable oils for soap-making. In addition, the amount of unsaponifiable matter in coconut oil is very small, ranging, according to Lewkowitsch[2], from 0.179 to 0.297 per cent. Coconut oil has a comparatively low titer,—about 22° C., but nevertheless, when saponified alone, it produces a hard soap which is very soluble in water and can combine with large amounts of water without becoming soft.

Complete catalytic hydrogenation of coconut oil raised its solidification point only about seven degrees, while it raised its melting point from about 25° C. to about 45° C. On account of its chemical composition, coconut oil is not readily saponified by weak caustic lyes. Alkaline lyes of high strength are required for saponification, but then coconut oil undergoes saponification with great rapidity. This property makes it an important ingredient in cold-processed soaps. The high lauric acid content of coconut oil accounts for the abundant lather produced by its soaps. On account of its chemical composition, coconut oil soaps are readily soluble in strong salt solutions, thus requiring extremely strong salt solutions for graining-out.

The fact that coconut oil soaps are soluble in salt solutions is taken advantage of commercially in two ways:—marine soaps are made almost entirely from coconut oil, and considerable quantities of salt solution are allowed to combine with the soap to produce a cheaper soap, which is, nevertheless, smooth and firm. Coconut oil also furnishes the base for hard water soaps. The fact that coconut oil itself possesses excellent keeping qualities is a further asset in its use in the soap industry, for the same fact applies to soaps made from it, the soaps thus also having a tendency not to turn rancid easily.

(Turn to Page 59)

BABASSU oil of American crushing from the nuts shipped from Brazil, has been offered in recent months as a direct substitute for coconut oil in soap manufacture. The oil is fairly close chemically to coconut and palm kernel, although higher in lauric acid. Attempts some five or six years ago to finance in New York a plant to crush the babassu nut (also known as cohune nut) in Brazil where they grow wild in tremendous quantities and yield a kernel containing 65% fat, were without success. At that time coconut prices were materially higher than they are today. The oil is being produced however in increasing quantities and is said to have found a growing use particularly among French soap manufacturers as a substitute for palm kernel oil. The vast supplies of babassu nuts in the forests of Brazil and their high fat content, keep this oil constantly in mind as a potential source of a great fat supply in spite of its present day commercial unimportance.

GERMICIDAL DETERGENTS

Synergistic Action of Soaps on the Germicidal Efficiency of Phenols

By ARTHUR R. CADE, Ph.D.*

SEVERAL years ago the writer, at first alone and later in conjunction with Dr. H. O. Halvorson, started what eventually became an extensive survey of the field of germicidal detergents, endeavoring to find economical combinations which would permit efficient detergent action and at the same time produce the desired germicidal effects. At the beginning, investigation was made of the effect of adding phenols to various soap mixtures. These preliminary tests indicated the possibility of obtaining the desired results when proper concentrations and ratios of ingredients were used. It was noted that certain soaps possess a definite synergistic effect when added in small quantities to either phenols or alkalies alone or together. It was noted further that certain unsaturated soaps showed this effect much more markedly than did the saturated ones. Sodium resinate was found to act like the unsaturated fatty acid soaps in this regard. Sodium laurate, a saturated soap, was also quite effective, but work with this material was not carried on to any appreciable extent because of the prior work and work apparently in progress by others at that time on the use of this soap with phenols. A part of this basic fundamental work on the action of soaps in aiding phenols has already been published (Cade and Halvorson, 1934) showing the effect of soaps in increasing the germicidal efficiency of alkalies. In this present paper that part of the work which shows the synergistic action of soaps in improving the germicidal efficiency of phenols will be discussed in detail. This work definitely shows that soaps alone are relatively non-germicidal to the test organism, whereas with phenols, they are distinctly germicidal. In addition, it was noted early in this work that small amounts of certain soaps markedly increase the germicidal power of phenols, producing definite germicidal action with dilutions of these phenols which, without the soap, are relatively inactive. It was also observed that as alkalies are added to these phenols, their germicidal potency gradually but steadily decreases until a pH value is reached at which they become inactive. This pH value is in the vicinity of 10. There is no definite pH at which one can say that the phenol is germicidal at a point below this value and non-germicidal above it, although in the range of pH 9 to 10, this change appears to be more distinct.

Data obtained definitely show that as soaps are added to various phenols, there is a range in concentration, in ratio of amount of soap to phenol, in which this synergistic action is marked, whereas concentrations above and below this optimum produce mixtures of inferior germicidal potency. The result varies with the type of soap used, but is manifested more especially with such unsaturated soaps as sodium oleate, sodium ricinoleate, and sodium resinate, with very inferior results obtained with such saturated soaps as sodium palmitate, and sodium stearate. It was further observed that, although phenols are germicidal to some extent on the alkaline side up to a pH around 10, nevertheless this germicidal efficiency can be appreciably improved by the addition of soap. The amount of improvement varies with the type of soap used, the concentration of soap and phenol, and the pH.

The basic finding involved here, namely that soap materially aids the germicidal value of phenols is not new, it having been observed by many workers prior to this time. The historical development of this is discussed below. The purpose and scope of this paper is to show this definite synergistic action as it applied over a wider pH range and to a wider variety of chemicals than has been previously used, and especially to show in more detail the appearance of an optimum range wherein this synergistic action of soaps is operative.

Since the publication of the first part of this basic work on the synergistic action of soaps on the germicidal efficiency of alkalies (Cade and Halvorson, 1934), and while this second part of the work was in the process of compilation for publication by the writer, another paper has appeared in SOAP, attempting to show what is claimed to be a new discovery of the synergistic action of soaps with alkalies and phenols. The work which formed the basis for this later paper was carried out recently by another group of workers in the same laboratory where the original basic work was developed. These latter workers investigated one small phase of the major problem, using a product slightly different chemically, but a closely allied phenol compound, and findings as published substantiate the earlier findings of the writer.

Lister (1867) was the first to introduce phenol as a germicide in the field of surgery, where it found extensive use for some time to follow. It was not until several years later that the valuable disinfecting power of cresols was pointed out by Frankel (1889), Henle (1889), and others, although it had been noted that different samples of phenol produced widely different germicidal results, which later was shown to be due to the presence of varying amounts of cresol as an impurity. Because of the insolubility of these phenols, their use was not very extensive until it was discovered that this objection could be overcome by emulsification in soap. Thus it was early recognized that soaps materially increase the

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germicidal power of phenols. As a result, a wide variety of this type of germicides were introduced, including compositions such as creolin, lysol, and a host of others, which emulsified disinfectants have found wide use even to the present day (Chick, 1908). Several theories as to the action involved in these emulsified soap-phenol mixtures have been presented. These include such explanations as the effect of surface tension, the increasing solubility, and the combination of these two factors, which accounts for more particles of germicide being able to contact more bacterial surfaces and thus produce greater germicidal action than either the soap or the phenol alone would do.

In more recent years the factor of specificity has been observed and emphasized in this connection. Several groups of workers have been active in this field, and although their writings show results somewhat at variance with one another as to details, nevertheless in general they all show definitely that soaps of one type or another markedly increase the germicidal efficiency of phenols. Among these workers are the following:

Hamilton (1911) studied the effect of adding soaps, such as those made from olive and coconut oil, to cresylic acid, alone and in the presence of alkali. His data show that an increase in phenol coefficient is obtained when these soaps are added to phenol solutions, and that a similar increase is noted in the presence of slight excess of alkali.

Approximately a decade ago, Frobisher (1927) studying the effect of surface tension phenomenon upon bactericidal properties of phenols, noted that soaps such as sodium oleate in certain low concentrations (0.02%) had very little effect upon the germicidal properties of phenol (1%), whereas when the concentration of soap was increased to around .05 per cent, the synergistic action was marked. When the soap concentration was increased to 0.1 per cent, the normal germicidal action of the phenol was not increased, but materially reduced. Similar data were obtained with hexylresorcinol and other surface tension depressants.

Hempil (1928) carrying out work along similar lines, reported that her data correlated with those of Frobisher as regards sodium oleate enhancing the germicidal power of phenol in proper concentrations, but that with other phenols, hexylresorcinol and cresol, her results differed in that concentrations less than 0.5 per cent sodium oleate seemed to have no effect on the bactericidal action of these phenols.

More recently Schaeffer and Tilley (1930) have published the results of research on the germicidal efficiency of soaps and mixtures of soaps with alkali and phenols, in which they show that soaps, such as those made from coconut oil, castor oil, or linseed oil, when mixed with various phenolic compounds in the proportions of 1 part soap to 2 parts phenol considerably increase the germicidal efficiency of the phenols, in the absence of organic matter, whereas in the presence of milk or blood serum such increases are comparatively small. They also showed that solutions made by adding cresol, commercial cresylic acid, or ortho phenyl phenol to coconut oil soap were sufficiently germicidal against Staphylococcus aureus, even in the presence of milk or blood serum. These same authors, several years previously (1925), studied the germicidal efficiency of coconut oil or linseed oil soaps and their mixtures in the presence of cresol, and report finding that cresols saponified with coconut oil soap are more germicidal than those obtained with linseed oil soap. They also state that adding caustic soda in large excess over that required to saponify the cresol solution containing coconut oil soap does not diminish the germicidal efficiency of the saponified cresol solutions. These authors' results have recently been incorporated in a U. S. patent (1934). Others, in a more general way, show the same phenomenon of soaps acting synergistically on phenols.

Several years ago the writer observed, in carrying out some of these experiments, that Dobell's solution, which is comprised of phenol in alkali of pH 9.0, was not germicidal to any appreciable extent in spite of the fact that it was widely used and so considered in the medical field. It was also noted at the same time that the addition of small amounts of sodium ricinoleate produced a germicidal mixture of the Dobell's solution tested, which alone had very little germ-killing power. Other soaps were found to produce the same results but to a lesser degree. The results of these findings then led the writer to investigate the general problem of the effect of a variety of soaps on a variety of phenols at different pH values, the results of which appear below in the experimental data.

Halvorson, Bayliss, Ordal and Wilson, working in the same laboratory as the writer, duplicated a part of this work recently (1935) to include a new phenol, sodium chlororthophenylphenol, and report finding that an exactly similar set of conditions existed as with the other phenols, namely that a synergistic action occurs whereby a combination of alkali and phenol alone, which is not appreciably germicidal, becomes germicidal when mixed with the proper amount of the proper soap.

The experimental data obtained by the writer and tabulated below bring out the following major points:

(1) Phenols act as germicides on the acid side and show improvement with decrease in pH, there being in addition a specific action whereby certain acids are much more efficient than others in increasing this germicidal power of phenols. (See Table I.)

(2) The addition of alkali to phenol decreases slowly and gradually the germicidal value of the latter, until a point around pH 10 is reached, where the phenols, during a short pH range, lose practically all their germ-killing potency. (See Table II.)

(3) Soaps, per se, are poor germicides, as far as the test organism, Staphylococcus aureus, is concerned, although excellent germicides for certain other organisms such as streptococci, pneumococci, and gonococci, while their action on organisms such as typhi and coli is intermediate. (See Table III.)

(4) Alkalies become germicides at a pH around 12 or above. (See Table IV.)

(5) Soaps materially aid alkalies as germicides, as discussed in detail in the previous paper by Cade and Halvorson. (See Table V.)

(6) Phenols are materially aided in their germ killing power by the addition of soaps up to a certain concentration, after which the addition of more soap materially reduces the germicidal power. Furthermore, different soaps have different effects in this regard, whereas different phenols with the same soap show similar effects. There appears to be an optimum range where each soap works best. (See Table VI.)

(7) Phenols in alkali are materially aided in their germ-killing power by the addition of the proper amount and proper kind of soap, whereby distinct germicidal properties can be produced at a pH and in a concentration wherein the phenol and alkali alone has much less or no appreciable germ-killing power. (See Table VII.)

THE method of germicidal testing used in this work is a modification of the Reddish, or Food and Drug Administration method; (Ruehle and Brewer, 1931) as it is now better known. This modification, as worked out by the writer in 1928, produces results more quantitative in character, allowing for a better observation of degrees of germicidal action. This procedure has been outlined in detail in *Soap* in the recent paper by Cade and Halvorson, and consists in general of adding 0.5 cc. standard 24-hour broth culture of the insecticide Board strain of *Staphylococcus aureus* to 5 cc. of disinfectant solution at 37.5°C. This mixture, after thorough shaking, was allowed to stand for 5 minutes at this temperature, and then a 4 mm. standard loopful was removed, which was seeded to agar and plated. These plates were incubated for 48 hours, and then the colonies were counted. Counts so obtained are listed in the tables of experimental data to follow. A count of 10,000+ represents an approximation of between 10,000 and 50,000, whereas 10,000++ refers to counts over 50,000.

Table I.

Germicidal Efficiency of Phenols Alone and in Presence of Acids.

A. Phenols Alone

	Plate Count		*Plate Count*
1-80 phenol	0	1-5,000 chlor thymol	0
1-90	85	1-10,000	40
1-100	350	1-15,000	10,000+
1-300 cresol	0	1-200 beta naphthol	0
1-400	1,800	1-500	1,000
1-1,000	10,000+	1-1,000	5,000
1-2,000 thymol	0	1-7,500 hexyl resorcin	0
1-3,500	1,100	1-10,000	1,500
1-5,000	10,000+		
1-25 resorcin	0	1-1,000 ortho phenyl phenol	0
1-35	1,000	1-2,500	75
1-100	8,000	1-4,000	10,000+

B. Phenols and Acids

Phenol Conc.	*Acid Used*	*pH of Mixture*	*Count*
1-150	Acetic	3.1	0
1-150	Sulfuric	3.1	10,000
1-150	Acetic	3.4	500
1-150	Sulfuric	3.4	10,000+
1-150	Acetic	2.8	0
1-150	Sulfuric	2.8	10,000
1-150	None	6.6	10,000++
1-150	Acetic	2.9	0
1-150	Acetic	3.3	500
1-150	Acetic	3.8	8,000
1-150	Sulfuric	2.2	10,000
1-150	Sulfuric	3.2	10,000+
1-150	Sulfuric	4.2	10,000+
1-150	Stearic	4.2	10,000+
1-150	Lauric	4.2	10,000
1-150	Oleic	4.2	650

	Counts		
Phenol Conc.	*pH 5*	*pH 6*	*pH 7*
1-100 phenol	0	0	250
1-200 phenol	3,500	8,000	10,000+
1-1,000 beta naphthol	0	1	10
1-10,000 hexyl resorcin	250	650	1,800
1-40 resorcin	70	500	600

C. Acid Alone

	Count
Sulfuric acid, pH 1	0
Sulfuric acid, pH 2	1,000
Sulfuric acid, pH 2.8	10,000+
Acetic acid, pH 2.2	250
Acetic acid, pH 2.4	1,000
Acetic acid, pH 2.6	10,000+

These data show sulfuric acid alone to be lethal to the test organism (Staphylococcus aureus) at a pH approximately 1.5. They further show that phenols at a pH above this and in concentrations at which they are not appreciably germicidal by themselves become active germicides upon addition of acids. They also show that the effect of acids on germ killing properties of phenols varies considerably with the specific acid used.

Table II.

Germicidal Efficiency of Phenols in the Presence of Alkalies

Phenol Solution	*pH 5*	*pH 6*	*pH 7*	*pH 8*	*pH 9*	*pH 10*
1-100 phenol	0	0	250	360	480	720
1-200 phenol	3,500	8,000	10,000	10,000	10,000+	10,000+
1-10,000 hexyl resorcin	250	650	1,800	4,000	6,000	10,000
1-1,000 beta naphthol	0	1	10	300	700	6,000
1-40 resorcin	70	500	600	2,000	3,000	5,000

	pH	*Count*
1-2,000 hexyl resorcin in distilled water	7.0	0
1-2,000 hexyl resorcin in $NaHCO_3$	8.0	0
1-2,000 hexyl resorcin in Na_2CO_3	11.0	2,500
1-2,000 hexyl resorcin in Na_3PO_4	12.0	10,000
1-2,000 hexyl resorcin (S. T. 37 diluted 1:2)		
in water	6.0	0
in $NaHCO_3$	8.2	0
in Na_2HPO_4	8.8	0
in Na_2CO_3	10.8	1,800
in Na_3PO_4	11.5	6,000

Table III.

Germicidal Efficiency of Soaps

Soap	Conc. Per Cent	Count
Sodium oleate	0.1	10,000+
Sodium oleate	1.0	10,000+
Sodium ricinoleate	0.1	10,000+
Sodium ricinoleate	1.0	10,000+
Castile soap	0.1	10,000+
Castile soap	1.0	10,000+
Sodium stearate	0.1	10,000+
Sodium stearate	1.0	10,000+
Sodium laurate	0.1	10,000+
Sodium laurate	1.0	10,000+
Cocoanut oil soap	0.1	10,000+
Cocoanut oil soap	1.0	10,000+
Sodium oleate	1.0	10,000+
Sodium oleate	2.5	10,000+
Sodium oleate	5.0	10,000+
Sodium resinate	1.0	100
Sodium resinate	2.5	10
Sodium resinate	5.0	0

These data, substantiating the work of others, show Staphylococcus aureus to be highly resistant to the action of soaps as a class, with the possible exception of sodium resinate in high concentration.

Table IV.

Germicidal Efficiency of Alkalies

Alkali	pH	Count
Phosphate buffer	7.0	640,000
Phosphate buffer	7.8	580,000
Phosphate buffer	8.4	520,000
Phosphate buffer	8.8	400,000
Sodium carbonate	11.2	300,000
Trisodium phosphate	11.9	120,000
Caustic soda	11.2	5,000
Caustic soda	12.6	1,000
Caustic soda	12.7	100
Caustic soda	12.8	50
Caustic soda	13.0	0

These data indicate that, as the pH increases, the solutions become more lethal to the test organism (Insecticide Board strain of Staphylococcus aureus), until a point is reached where the concentration of the OH ions is sufficient to kill all the organisms.

Table V.

Germicidal Efficiency of Alkalies in the Presence of Soap

Synergistic Action of Soaps on Alkalies

Soap	pH 12	Counts at Various Concentrations 0.025%	0.100%	0.250%	0.500%
Sodium	oleate*	27	6	0	0
Sodium	ricinoleate*	250	200	200	60
Sodium	resinate*	3,500	350	10	0
Sodium	stearate†		5,000	6,500	10,000
Sodium	palmitate†		7,000	5,000	10,000
Sodium	myristate†		5,000	3,500	7,000
Sodium	margarate†		6,000	10,000	9,000
Sodium	laurate†		120	0	240

* Unsaturated.
† Saturated.

At pH 10 Per Cent	Sodium Oleate	Sodium Ricinoleate	Linseed Oil Soap	Sodium Resinate
0.025	4,500	8,000	1,200	10,000
0.100	3,600	4,000	2,600	1,500
0.250	100	3,000	3,600	7
0.500	0	3,000	3,600	1
At pH 11				
0.025	110	2,200	130	3,000
0.100	90	2,000	90	1,000
0.250	70	1,800	70	100
0.500	45	900	45	0

At pH 12 Per Cent	Sodium Oleate	Sodium Ricinoleate	Linseed Oil Soap	Sodium Resinate
0.025	27	250	20	3,500
0.100	6	200	12	350
0.250	1	200	50	10
0.500	3	60	7	0

These few tables of data compiled from the more extensive work previously presented in detail in the paper by Cade and Halvorson show the definite synergistic action of small amount of unsaturated soaps on the germicidal efficiency of alkalies. This action manifests itself at all points along the pH scale, though the effect is more pronounced for practical purposes in the range of pH 9.5 to 12.5. These data show also that the saturated coconut oil soap is an exception in that it acts like the unsaturated soaps in this respect.

Table VI.

Germicidal Efficiency of Phenol-soap Mixtures
The Synergistic Action of Soaps on Phenols
A. Phenol and Sodium Ricinoleate

Phenol Conc.	Soap Conc. Per Cent	Count
1-200	0.000	10,000
1-200	0.010	1,200
1-200	0.035	250
1-200	0.065	150
1-200	0.100	3
1-200	0.250	5
1-200	0.500	50
1-200	1.000	1,000
1-200	3.000	5,000
1-200	5.000	8,000
1-100	0.000	4,000
1-180	0.100	0
1-200	0.100	85
1-220	0.100	200
1-140	0.010	0
1-180	0.010	250
1-220	0.010	1,000
1-140	0.050	0
1-220	0.050	4,000

B. Phenol and Other Soaps

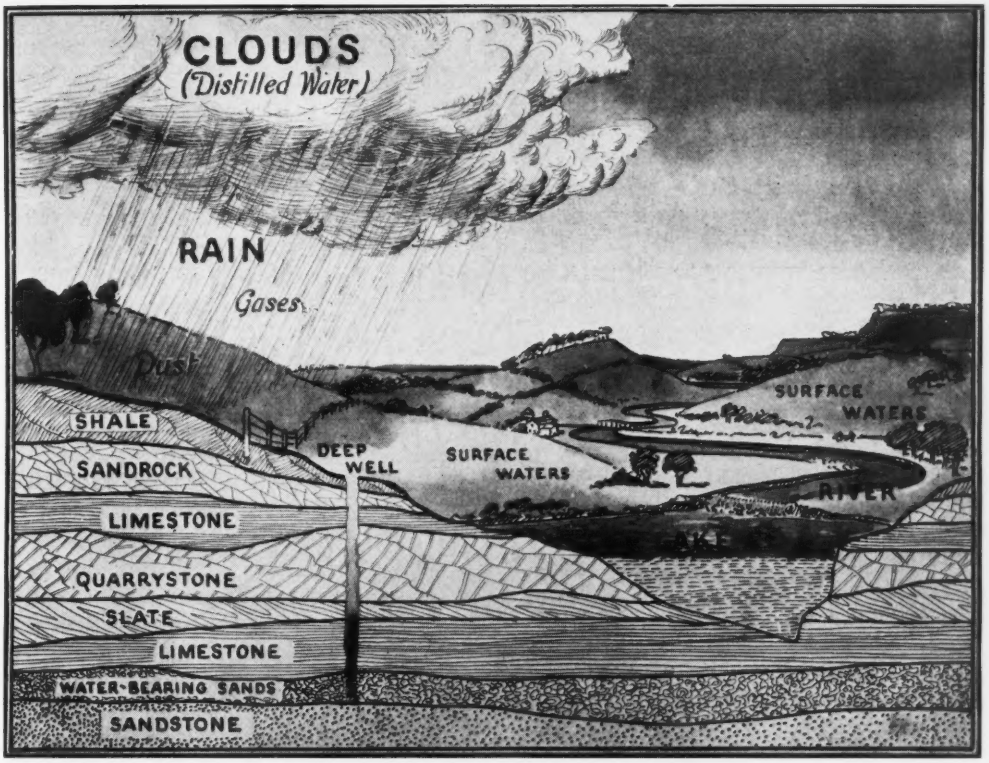
1-200	0.1 sodium ricinoleate	120
1-250	0.1	850
1-300	0.1	1,500
1-200	0.1 sodium oleate	850
1-250	0.1	1,600
1-300	0.1	4,000
1-200	0.1 sodium stearate	10,000+
1-250	0.1	10,000+
1-300	0.1	10,000+

Phenol Conc.	Soap	Count 0.05%	0.10%	0.25%
1-150	Sodium oleate	4	100	30
1-150	Sodium ricinoleate	0	0	18
1-150	Sodium stearate	1,500	3,000	800

C. Other Phenols and Soaps

Phenol	Soap Conc. Per Cent	Count Sodium Ricinoleate	Sodium Oleate
1-15,000 chlorthymol	5.000	10,000++	10,000++
	2.500	10,000++	10,000++
	1.000	10,000+	10,000+
	0.500	10,000	10,000+
	0.250	5,000	10,000
	0.100	350	800
	0.050	0	0
	0.010	0	0
	0.001	10,000	10,000+
	0.000	10,000++	10,000++

(*Turn to Page* 115)



A graphic explanation of why hard water is "hard."

Household Water Softeners

A Discussion of Their Composition and Action, and Conditions Under Which They Should Be Used

By C. A. TYLER, Ph.D.

WATER softeners in package form for domestic use have a wide popularity in hard water regions. This is not altogether a question of economy. The housewife is not necessarily so concerned with saving her soap, although this factor may be recognized, as she is in getting satisfactory results. She has learned that using soap in hard water produces a sticky coagulum on the things she is trying to clean. The advantages of softening the water before adding soap are easily demonstrated.

In a general way everyone knows what hard water is, but it takes a bit of chemistry to get the picture clearly in mind. Rain water of course, is soft, since it contains only dissolved gases, mainly oxygen and carbon dioxide which it has dissolved in its passage through the air. When this water flows over or through the ground it dissolves more substances, minerals or salts, which change it to "hard" water. The salts taken up depend on the nature of the soil, but in general they consist largely of calcium, with lesser amounts of magnesium, in the form of bicarbonates, carbonates and sulfates. At first sight it seems an anomaly that limestone which is calcium carbonate, is dissolved by ground water, when calcium carbonate is the main ingredient of the precipitate obtained by softening hard water with soda ash. It is because ground water contains dissolved carbon dioxide in the form of carbonic acid that it is able to take up limestone (carbonate), forming calcium bicarbonate, $CaHCO_3$, which is about 30 times as soluble as the carbonate, $CaHCO_3$. So it becomes a matter of solubility. As long as the bicarbonate can be formed, solution will occur. Addition of carbonate reprecipitates limestone.

Probably the most common water softener for domestic use is plain soda ash. Why is this effective? Because it reacts with soluble calcium salts to form calcium carbonate, which is soluble only to the extent of 0.013 grams per liter.

$$Ca(HCO_3)_2 + Na_2CO_3 = CaCO_3 + 2\ NaHCO_3$$

$$CaSO_4 + Na_2CO_3 = CaCO_3 + Na_2SO_4$$

Calcium carbonate precipitates out, leaving in solution the soluble salts, sodium bicarbonate and sodium sul-

fate. Thus soda ash removes both temporary and permanent hardness.

"Temporary hardness" is associated with the presence of bicarbonates. As may be seen, it is essential in a discussion of this kind to distinguish sharply between carbonates and bicarbonates. The term temporary is applied because calcium bicarbonate can be removed simply by boiling the water. Carbon dioxide is driven off as a gas, leaving calcium carbonate which precipitates out. "Permanent hardness," produced by sulfates, is not affected by boiling.

But soda ash is not a complete answer if magnesium is present, because magnesium carbonate is soluble to the extent of about 1 gram per liter. This corresponds to 1,000 parts per million or 59 grains of hardness; 17.1 p.p.m. equal 1 grain of hardness. Since the figures we are using occur in several different forms according to the source from which they come, the following tabulation is given to explain the relationship:—0.017 grams per liter is 17 mg. per liter, or 17 parts per million, (p.p.m.), which equals 1 grain of hardness. Very soft water such as that supplied to New York City may contain as little as 2 grains of hardness, that is, 34 p.p.m., while very hard water may contain 500 p.p.m. of hardness. Therefore soda ash is no help as far as magnesium is concerned. In fact, magnesium carbonate is a form of permanent hardness, because it is not affected by boiling.

To precipitate magnesium, trisodium phosphate is used. Magnesium ortho phosphate is soluble in cold water to the extent of 20 p.p.m., which is about the same as the solubility of calcium carbonate mentioned above, 0.013 grams per liter or 13 p.p.m. Compounders often mix soda ash with trisodium phosphate in order to have a softener which will take care of both calcium and magnesium. Some adjust their product to the type of water in a particular region. One disadvantage of using trisodium phosphate for this purpose is its alkalinity. Women are apt to use considerably more softener than necessary and as a result they often complain of the effect on their hands from using this type of product.

THERE is a tendency for the soap manufacturer to .make powdered soap preparations containing water softeners, increasing the proportion of softener for sale in districts known to have exceptionally hard water supplies. Theoretically at least, it is not good practice to add the softener with the soap. Again it is a question of solubility. Seidell in his book "Solubilities of Inorganic and Organic Substances" gives the solubility of calcium stearate at room temperature as 40 p.p.m. and calcium palmitate 28 p.p.m. These solubilities are close enough to those for calcium carbonate and magnesium phosphate so that the calcium *soaps* would precipitate with the other salts. The insoluble material would be a mixture of easily rinsible inorganic salts and sticky insoluble soaps.

If there were a wide difference in solubility, the less soluble compounds would precipitate out and leave the others in solution, but with the substances under consideration, there is no great difference and therefore they will all precipitate together. It is obvious from this that to secure the greatest efficiency, the water softener should be added before the soap, allowed to dissolve completely, and be well mixed. In this way calcium and magnesium are removed as precipitates before they get a chance to react with the soap. The inorganic precipitates do not seriously interfere with the subsequent washing process, as they are easily rinsed off.

Since soda ash and trisodium phosphate are well known soap builders, it is natural to inquire whether other alkaline salts in the same class are also effective as water softeners. Sodium metasilicate might naturally come in for consideration. As a matter of fact metasilicate is not particularly valuable as a water softener, especially at room or slightly elevated temperatures. It is claimed that it serves a purpose when used in dishwashing machines, washing machines, etc. in preventing the reaction products of hard water and other alkalies from forming hard incrustations on the parts of the machinery. This scale formation is sometimes rather serious, so that the action of metasilicate as a protective colloid is undoubtedly of value.

While iron is not generally considered a constituent of hard water, it is present in many waters and is capable of forming insoluble iron soaps. It is apt to be present in the form of ferrous bicarbonate. While soda ash will precipitate ferrous iron, metasilicate is considered better by some authorities for this purpose. These alkaline salts are sometimes given credit for a bleaching action, which of course is not the case. They act by removing iron and therefore prevent staining by iron and indirectly produce better whiteness in the washed fabric.

Sodium metaphosphate is coming into prominence as a water softener. While the softeners which we have been considering so far remove calcium and magnesium from solution by forming inorganic precipitates, metaphosphate behaves somewhat differently. In this case, no precipitate is formed. It is believed that the calcium or magnesium replaces sodium in a complex ion. While the negative complex ion containing sodium undergoes only a slight secondary ionization, just sufficient to allow the interchange to take place,—when the complex ion contains calcium or magnesium, this secondary ionization is even less. In a way, the effect is the same as with precipitation in that the interfering ions, calcium and magnesium, are taken out of circulation by being transferred to a non-ionized state. Since the double salt formed with metaphosphate is soluble, the extra rinsing necessary when precipitates are formed is avoided by this method of water softening. The chief disadvantage of metaphosphate is that its efficiency as a softener is practically nil at room temperature. Above body temperature, about 38° C. or 100° F., sodium metaphosphate becomes a good softener and reaches maximum

efficiency at the boiling point. Unlike precipitating agents, metaphosphate can be added just as well with the soap as before soap addition.

Sodium pyrophosphate is a good water softener at 70° C. (158° F.) or higher temperatures. It is considerably less effective than the metaphosphate against calcium hardness, but is more effective against magnesium hardness. Since magnesium occurs in water in smaller quantities than calcium, it is not surprising to find the leading commercial phosphate water softener, contains a large proportion of metaphosphate and a small proportion of pyrophosphate. At elevated temperatures, these phosphates are the most effective agents found so far for inhibiting soap precipitation by hard water.

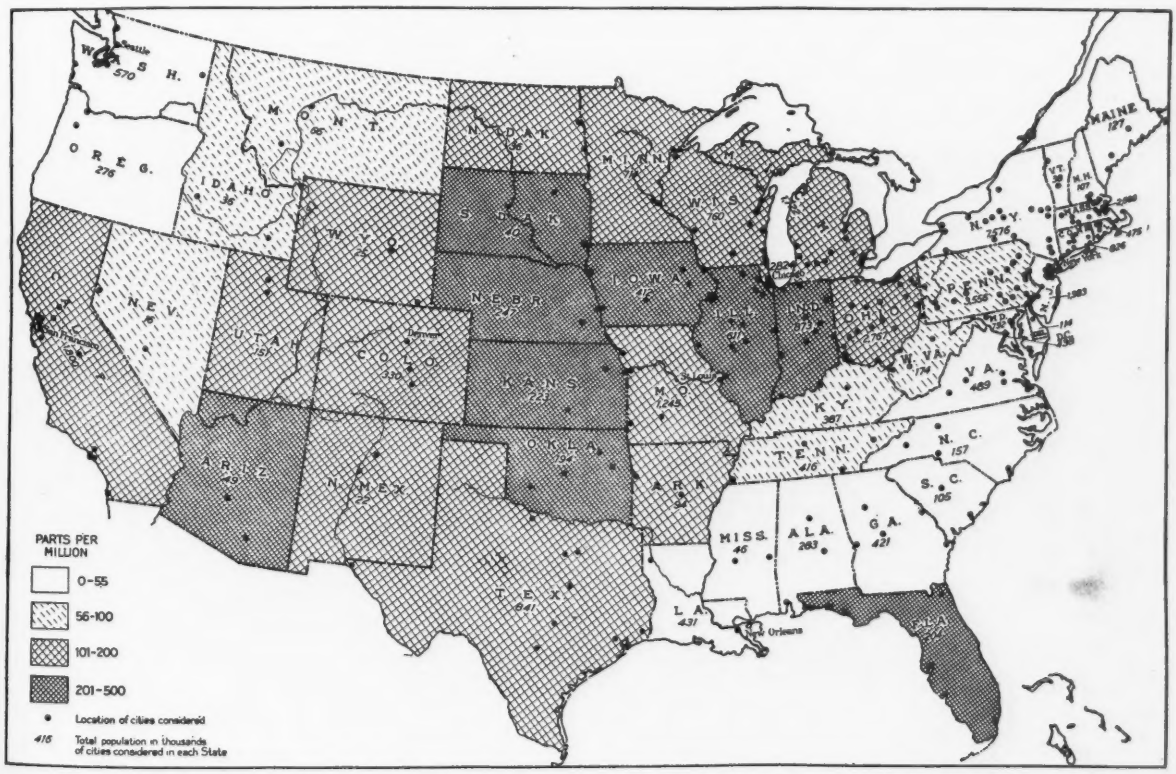
Igepon T apparently forms soluble salts in hard water. In other words its calcium salt is soluble just as calcium sulfate is soluble. It makes a very good softening agent except at the boiling point of water, which is in direct contrast to the phosphates just mentioned. At room temperature it is a better preventive of soap precipitation than other inhibitors. Like the meta- and pyrophosphates, it can be added with the soap. Its effectiveness covers a rather wide temperature range of from 25 to above 60° C. (77 to 140° F.). It is possible that at mildly elevated temperatures it forms a soluble non-ionized calcium salt but that ionization increases at the boiling point to such an extent that a relatively large proportion of calcium ion becomes available for reaction with soap.

The solubility of sodium lauryl sulfate in hard water also varies greatly with temperature. The magnesium salt is more soluble than the sodium salt but the calcium salt is much less soluble. In fact the calcium salt is relatively insoluble but is affected favorably by the presence of the sodium salt. Compared with the meta- and pyrophosphates or Igepon, sodium lauryl sulfate is only slightly effective in preventing the precipitation of calcium soap. What effect it has is shown at room and luke-warm temperatures rather than near the boiling point. Its primary function therefore, is not as a water softener in conjunction with soap, but as a hard water detergent to be used by itself. It is possible that it might be used to advantage with soap in regions where the water is only moderately hard.

It may be seen from the above that considerable chemistry is involved in the intelligent compounding of water softeners for household use. The market for these naturally depends to a large extent on whether the products will do what they say they will. This in turn depends as indicated, on the application of certain fundamental principles of chemistry.

—— ♦ ——

A cake of soap containing a sheet of rubber having spaced massage fingers projecting from it is covered in U. S. Patent No. 2,007,107 issued to David H. Bottrill, Montreal, Canada. When the cake is brought in contact with the skin, a massaging action can be exerted by the fingers.



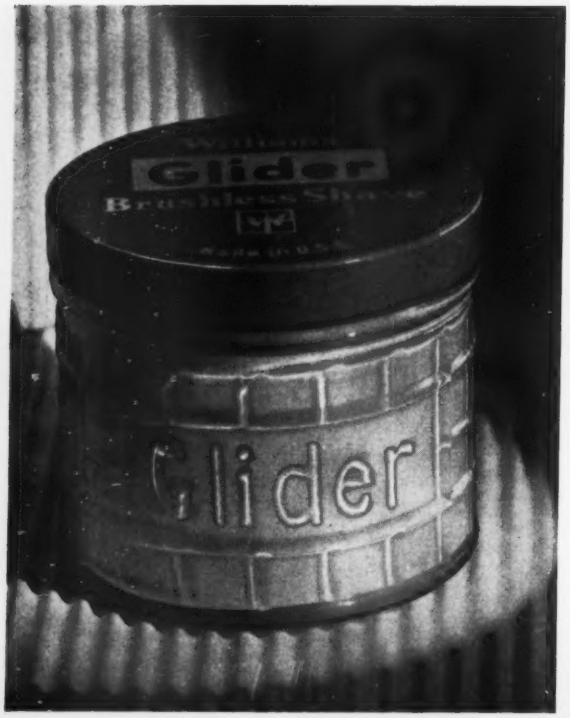
AVERAGE HARDNESS, BY STATES, OF WATER FURNISHED BY PUBLIC SUPPLY SYSTEMS IN OVER 300 CITIES IN THE UNITED STATES AND POPULATION, BY STATES, OF THE CITIES CONSIDERED. FROM U. S. GEOLOGICAL SURVEY WATER-SUPPLY PAPER 496

New

Two new products are added to the Tick line, Tick Rubless Wax and Tick Flushing Powder, both in the same striking black and silver can design as the insecticide products. Products by Derris, Inc., New York. Containers by American Can.

Heetfield-Tiilou.

Pert Cleaning Fluid is a new product of the Enoz Chemical Company of Chicago, makers of insecticides and other sanitary specialties, reported doing very nicely. Bottle is a standard design dressed up with a white metal closure by Phoenix.



Glider, the brushless shaving cream of J. B. Williams Company of Glastonbury, Conn., sold for two years only in tubes, makes its appearance now in a wide-mouth glass jar of special design made by Owens-Illinois.

Products and Packages

Shampine is a new shampoo jelly in wide-mouth glass jar with black metallic cap, all encased in glassine paper. Product is manufactured by the Clifton Chemical Company of New York, makers of other soap specialties and allied products.

Improved packaging in shoe creams is the order of the day. Betty Lee's Shoe Creams, manufactured by the Birk Manufacturing Company of New Albany, Ind. in a new container by Owens-Illinois with caseal closure by Closure Service.

Nourishine Shampoo in a more attractive bottle and carton. A soap shampoo manufactured by the Nourishine Manufacturing Company of Los Angeles. Bottle label to match carton design. Moulded closure by Anchor.

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Liquid Shaving Soaps

THE manufacture of liquid shaving soaps presents many difficulties which have been quite effective in limiting the number of these products on the market. In the United States, only a very few liquid shave soaps are on the market, and only one has any distribution worth consideration. In Europe, they evidently have met with more success, at least from the manufacturing angle. Two types are manufactured, clear solutions of potash soaps with alcohol and glycerine, and superfatted emulsions of the consistency of milk. The latter apparently give the most satisfactory products considering the type of container required and the method of use.

The choice of fats to be used in the manufacture of liquid shaving soaps must be such as to yield a product furnishing a heavy stable lather. Practical comments on suitable formulas are given by Monsoin in *Die Seifen-, Oel- und Fettindustrie*, **21,** 191 (1935). The appearance of the product will also depend upon the choice of ingredients, that is, whether a clear liquid is obtained or a milky white emulsion. Unfortunately, large amounts of glycerine and alcohol clarify the liquid soaps at the expense of lathering power. For this reason milky emulsions built up with stearic acid are used considerably. Both kinds are described here. A formula for a clear soap follows:

	Kg.
Tallow	30
Coconut oil	12
Caustic potash, 50° Bé.	18.5
Potash, 4 kg. dissolved in 15 kg. of water	
Calcium-free glycerine	35
Alcohol	30

The tallow and coconut oil are stirred with the caustic soda at a temperature of 55-60° C. (130-140° F.). After saponification the warmed potash solution is stirred in, and the glycerine, also warmed, and finally the alcohol are added. When sufficiently cool, perfume is mixed in. Let stand at as low a temperature as possible, then filter.

A second formula for a clear soap is as follows:

	Kg.
Tallow	4
Oleine	6
Coconut oil	4
Caustic potash, 50° Bé.	6
20% Potash solution	7
Calcium-free glycerine	10
Alcohol	10

While these soaps lather quickly, the creamy compact type of lather obtained with stearine soaps is not attainable, either by using a large amount of soap or by prolonged working with a shaving brush.

The following formula is for a liquid shaving soap prepared with stearic acid which gives an excellent lather and therefore leads to quick, smooth shaving:

	Kg.
Stearine	8.4
Coconut oil	8.4
35% Caustic potash	8.1
Calcium-free glycerine	8.4
Alcohol	2.4
Water	48.0
Petrolatum	0.650
Cymene	0.650

Warm the caustic potash and alcohol together to about 70° C. (158° F.). Warm the mixture of stearine, coconut oil, petrolatum, and cymene to the same temperature and stir the fat mixture in several portions into the alcoholic caustic potash solution allowing for the increase in volume. Saponification is very rapid because of the presence of alcohol. The viscosity of such a soap can be regulated as desired, by a slight or greater superfatting with stearic acid. If the soap is adjusted to an excess alkalinity of 0.01 per cent, the consistency, after addition of the prescribed amount of water, will be about the same as that of milk, and the color a pure white. By superfatting with 50-100 grams of excess stearic acid, the consistency when cold will be that of a smooth creamy emulsion, with the same amount of water as above. Superfatting with 300 grams of stearic acid, which represents the limit for pouring, gives a product which is relatively thick when cold. When very creamy, the consistency must be carefully controlled, so that the product will pour easily from a narrow-necked bottle. A few drops only of such a soap will give a thick, rich lather of satisfactory stability.

A somewhat cheaper, but also good liquid shaving emulsion is as follows:

	Kg.
Stearine	5
Coconut oil	5
Caustic potash, 38° Bé.	5
Calcium-free glycerine	5
Lanolin	0.25
Water	40

The method of manufacture is the same as the preceding. This soap product requires an excess of stearic acid. Otherwise it may separate into two layers on long standing. Superfatting stabilizes the emulsion. By incorporating emulsifying agents such as ceresin, cetyl alcohol or similar materials, the stability of the emulsion can be increased without the use of stearic acid, to which some skins are sensitive.

The index of employment in the soap industry stood at 99.3 in July, 1935, as compared with 99.5 in June and 97.7 in July, 1934, according to figures compiled by the U. S. Department of Labor. The pay-roll index for July, 1935, registered 94.4, comparing with 95.8 in June and 84.3 in July, 1934.

COMPENSATORY TAX ON IMPORTED SOAPS

A tax on imported soaps and fatty acids was adopted as an amendment to the Revenue Act of 1935 just prior to the adjournment of Congress. This tax, termed a "compensatory tax on products of certain oils", calls for the payment of import duties equivalent to the processing tax now paid by soap makers or other processors on coconut, palm, palm kernel, and other taxable foreign oils. In other words, an imported soap containing coconut oil will be taxed three cents per pound on its coconut oil content, or a fatty acid, made from a taxable oil, would be taxed on the equivalent of oil involved in its manufacture. The new law becomes effective thirty days from the date of signing by the President, which will be approximately October 1. The law is understood to be drawn especially to cover imported fatty acids, the imports of which have been unusually heavy during the past year. It is not expected to make any material difference in the imports of finished soaps.

The language of that section of the Revenue Act, as passed, having to do with soaps and fatty acids, follows:

"Sec. 402 Compensatory Tax on Products of Certain Oils: During any period after the thirtieth day after the day of the enactment of this Act when —

(1) a processing tax is in effect under section 602½ of the Revenue Act of 1934, or

(2) an import tax is in effect under section 601 (c) (8) of the Revenue Act of 1932, as amended, there is hereby imposed upon any article (not within the scope of either such tax) manufactured or produced wholly or in chief value from any one or more of the oils subject to either such tax, when such article is imported into the United States from any foreign country or from any possession of the United States or from the high seas, a compensatory tax equivalent to the tax which would be payable under such section 602½ or 601 (c) (8) upon such oil or oils if imported into the United States or if processed in the United States. The tax imposed by this section shall be levied, collected, and paid in the same manner as a duty imposed by the Tariff Act of 1930, and shall be treated, for the purposes of all provisions of law (except section 336 of such Act) not inconsistent with this section, as a duty imposed by such Act. All taxes collected under this section on account of coconut oil produced from materials wholly of Philippine growth or production, shall be held as a separate fund and paid to the Treasury of the Philippine Islands, but if at any time the Philippine Government provides by any law for any subsidy to be paid to the producers of copra, coconut oil, or allied products, no further payments to the Philippine Treasury shall be made under this section."

WHICH TOILET SOAP?

Which toilet soaps do people buy,—and why? Which toilet soaps do retail druggist want to sell,—and why? A study of toilet soap buying habits in the drug stores of a suburban community reveals that 75% of people know what soap they want and ask for it. And does the druggist "switch" them? Read "Which Toilet Soap,—and Why?", a study by Florence E. Wright, in the October issue of SOAP.

Chicago Trade Notes

FIRE of undetermined origin broke out in the soap and glycerin plant of Armour & Co. in the Bridgeport industrial district north of the Union Stockyards, Chicago, on August 31st. The fire started on the third floor of the glycerin plant at 32nd and Fox streets, adjacent to the main buildings of the Armour soap factory at 1355 W. 31st street. A score of workmen fled when the flames swept over three tanks of fatty acids and threatened to spread to other buildings in which chemicals, glue, glycerin and soap were stored. According to A. J. Clauter, superintendent, prompt action by the fire department limited the damage to less than $1,000.

Capitol Sanitary Products Company announce that they have appointed J. H. Dorf to cover the jobbing trade in Illinois, Michigan and Wisconsin. The company is now featuring a white emulsion furniture polish and a water emulsion wax.

Haag Laboratories, Chicago, have recently installed new equipment to increase their production facilities on surgical, jelly and liquid soaps. According to V. W. Haag, president, the company's business on these items has been showing steady gains.

Standard Oil Company of Indiana has recently published some attractive literature on three of their insecticide products, Verdol, Superla and Bovinol. The latter product, which is being introduced for the first time is a cattle spray.

Stone Chemical Exterminating Co., Chicago, on October 1st will move into larger quarters at 1327 S. Michigan Avenue. It is reported that the company will broaden its activities by selling a complete line of sanitary supplies.

Dr. Eric Meyer of L. Sonneborn Sons, Inc., New York, is the author of an article on "White Mineral Oil and Petrolatum in Pharmaceutical and Cosmetic Practice" which appeared in the Journal of the American Pharmaceutical Association. He covers fully the ways and means of selecting the correct petrolatum and white oil for various purposes, including creams, sprays, emulsions, hair tonics, shaving creams, and soaps, and their specific uses and application. Copies of the paper in booklet form may be secured from L. Sonneborn Sons at 88 Lexington Ave., New York.

Schimmel & Co., New York, has just issued a new edition of its price list and catalog, listing quotations on aromatic chemicals, flower oils and bases, compounds, flavorings and a number of "Schimmel" specialties.

Pacific Coast Notes

FRED NASSOUR of the Castilian Products Corporation of Hollywood, Calif., has just returned to his plant activities after a recent illness.

Wasatch Chemical Co. of Salt Lake City, has just taken on the Albek and Felton chemical lines for that territory. Local stocks will be carried.

Purex Co. of Los Angeles, due to national distribution of their products, plans to establish a factory in the mid-west. Mr. Harris, head of the company, recently returned from St. Louis, after completing the plans.

Harry Toplisky, of the Southern California Disinfecting Co. of Los Angeles, is convalescing from a serious illness, and is expected to return to his office shortly.

Studio Cosmetics Co., has recently moved into new quarters on North Highland Ave., in Hollywood, Calif.

The Counsel for the California Cosmetic Association, Gail Selig, recently returned from Washington, after conferring with government officials regarding current problems confronting the soap and cosmetic industries of the West.

Albert Albek, head of Albert Albek, Inc. of Los Angeles, has just returned from an extended motor trip through the entire west, and reports increased activity in industry as a whole. The main purpose of Mr. Albek's trip was to establish agencies in Salt Lake City, Utah.—the Wasatch Chemical Co.; and in Denver.—George E. Tarbox, Jr.

Peroxide Chemical Co. of St. Louis has organized a separate Pacific Coast manufacturing unit in San Francisco, known as the Herb-Verdi Co., which is already in operation.

LIGHTFOOT SCHULTZ CITED BY F.T.C.

Unfair trade practices are alleged in a complaint issued by the Federal Trade Commission naming B. H. Krueger, Inc., New York, toiletries, and Lightfoot Schultz Company, Hoboken, N. J., soaps, as respondents. It is charged in the complaint that both of these corporations deliver part of their products to Worthall, Ltd., by which company they are distributed under the trade name of "Drury Lane English Lavender," and so marked as to indicate that Worthall, Ltd., maintains offices in London, Montreal and New York. The complaint says that in fact Worthall, Ltd., is not a limited corporation, is not an English company, and has no branch or office in London or Montreal. It is further charged that none of these products was manufactured or compounded in London, nor were they made of English material. Use of trade names and other representations and implications to the effect that products are imported have the capacity and tendency to mislead dealers and the purchasing public, the complaint sets out, and tend to unfairly divert trade from competitors who do not resort to false and misleading representations. The respondents have been allowed by the Commission until September 20 to show cause why an order should not be entered requiring them to cease and resist from the violations of the law charged in the complaint.

Rupert C. Watson of Ungerer & Co., New York, was married on August 17 to Miss Mary A. Giblin in the Church of St. Francis of Assisi, Brooklyn. Miss Giblin is secretary to J. W. Casterton, a director of Standard Oil Co. of New Jersey, and head of the purchasing division. Friends of Mr. Watson gave him a bachelor dinner at Little Venice on 13th Street, New York, several days before the ceremony. The wedding was followed by a reception at the Hotel St. George in Brooklyn. Mr. and Mrs. Watson returned from their wedding trip September 4th. They will reside in St. George, Staten Island.

The $50,000 addition to the plant of the Stokes & Smith Co., at Summerdale, Philadelphia, recently completed, with new rail siding, shown in the lower right of a recent airplane photograph of the company's plant.

SOAP PERFUME SPECIALS
by SOAP PERFUME SPECIALISTS

Will 60 or 75 cents perfume 100 pounds of toilet soap? It will, *if* your perfume has been *specially* made by perfumers who have made a lifetime study of soap.

We have built up an entire department along those lines and invite your inquiries.

new

ROSE
GARDENIA
LILAC
ORCHID
JASMIN
SANDAL
BOUQUETS

Price range on above oils $1.50 *to* $4.00 *per lb. All give adequate perfume results in* 1/4% *to* 1% *strength.*

van Ameringen-Haebler, Inc.
Aromatic Essentials

315 Fourth Avenue, New York
180 No. Wacker Drive, Chicago
438 West 48th St., Los Angeles
42 Wellington Street, E., Toronto

Factory, Elizabeth, N. J.

PERSONAL AND IMPERSONAL

Arthur P. MacIntyre has been elected treasurer of Lever Brothers Co., Cambridge, succeeding the late Arthur C. Roche.

Klix is the name of a new all-purpose cleaner now being manufactured and marketed by the Klix Laboratories of 83 Columbia St., Seattle, Wash. The product has a trisodium phosphate base, the formula having been worked out by A. Morley Horder of Seattle. It is now being sold in bulk to buildings, garages, hotels, etc., and in attractive blue packages for home use.

General Foods Corp., New York, is introducing a new water softener under the name "Cal-X." It is now being given market tests in a number of cities throughout the country under the direction of C. H. Gager, sales and advertising manager of General Foods. The new product is said to be the result of extensive research carried on at Hall Laboratories and the Mellon Institute.

Mrs. Margaret Colgate, widow of Richard M. Colgate, former head of Colgate & Co., died at her home in New Vernon, N. J., Aug. 22, at the age of seventy-three. Surviving are a son, Henry A. Colgate, New Vernon; a daughter, Mrs. Cyril Damon, Honolulu; a brother, John A. Auchincloss, this city, and a sister, Mary A. Auchincloss, New Haven.

John H. Woodbury Co., Cincinnati, has added a new feature to its radio broadcast in the person of Dr. Philip Adams, chief biochemist for Woodbury, who advises listeners on the correction of common facial blemishes.

Soap and Chemical, Inc., Pittsburgh, have moved their office and plant to 319 Federal Street, where they will operate the warehouse of Paper Makers Chemical Corporation and act as their distributors to the consuming trade in the Pittsburgh area. Soap and Chemical, Inc., have also been appointed a distributing agency by the U. S. Industrial Alcohol Co. for anti-freeze. In moving their office and plant they have acquired the retail business of "Bert Enders Company" and will continue to operate as Soap and Chemical, Inc.

Packer Mfg. Co., New York, is advertising a special deal consisting of three olive oil shampoo packages and three of pine tar shampoo at a price of $1.87. Each package consists of a small and a large bottle. The customer is asked to use the trial bottle first and if dissatisfied may return the large bottle unopened for a full refund.

Emery Industries, Inc., Cincinnati, has taken over Duratone, Inc., Cincinnati laundry soap concern. E. C. Price, president of Duratone, will continue as manager of the company, which will be operated as a division of Emery Industries.

Colgate-Palmolive-Peet Co. is currently offering a free large size tube of "Brushless Shave Cream" in exchange for an empty carton from a giant size tube of "Colgate Ribbon Dental Cream."

Gold Dust Corporation reports net profits for the year ended June 30 of $2,097,477, or 97c a share on the 1,790,202 shares of common stock, after preferred dividends. A year ago the company changed its fiscal year from periods ending December 31 to periods ending June 30. The only comparison therefore is with a report for six months ended June 30, 1934, which showed net profits of $1,039,103 or 48c a share on the common stock.

Eastern Producers' Glycerine Co. has been chartered under Delaware laws to deal in nitroglycerine and all kinds of explosives.

American Chemical and Cosmetic Mfg. Co., 401 West Michigan St., Indianapolis, will shortly start production of a complete line of cosmetics. The new concern is headed by Rolland E. Friedman and will employ thirty persons at the start. The plant is a two-story brick building, having 16,700 square feet of floor space. It has been equipped with $30,000 worth of new machinery of the latest type.

The famous French soap and perfumery house of Houbigant, recently attained its 160th anniversary, and as a result, congratulations from all parts of the world have been pouring in upon the London and Paris headquarters.

Noah Beery, the famous film star, is now in London negotiating with some interested concerns in the United Kingdom with a view to promoting the use of an abrasive, which he has discovered on his California ranch, in soaps and cleansing powders. Mr. Beery claims that this abrasive rock, when powdered, is an amazing cleanser. The deposit covers about 10 acres and is about 40 feet from the surface.

Royal Crown Soaps, Ltd., Winnipeg, Man., Canada, has about completed a three-story addition to its plant.

The Twenty-Fourth Hour

Glaring plant lights
fade and die in the on-
rushing dawn . . and then
another day . . another
twenty-four-hour day.
• Continuous production . . a
procedure to assure prompt
shipments to all corners of the
world. • Constant . . incessant . .
production of Newport products
is your safeguard against any ne-
cessity for "fill-ins" . . your assurance
of product uniformity . . always.

GENERAL NAVAL STORES COMPANY, INC.

R. J. Klatt, secretary-treasurer of Olo Soap Co., Beaver Dam, Wis., died recently of heart trouble at the age of fifty-two.

W. Newell Wyatt of the sales department of the Warner Chemical Co., New York, was married on August 29 to Miss Lois Keiper of New York at Trinity Chapel in New York. Mr. Wyatt, who has been associated with Warner for the past five years, is well known in the trade.

Kerk Guild, New York, is introducing a novelty soap product—Shirley Temple in soap sculpturette form.

Pinaud, Inc., New York, announces the appointment of Leonard B. Weiss, formerly with Harriet Hubbard Ayer, as its Chicago district manager.

The wholesale and retail departments of Armand Co., Des Moines, Ia., have recently been consolidated into one department under the direction of William Weeks, son of Carl Weeks, founder and president of the concern.

False and misleading advertising of "Cuticura Soap" and "Cuticura Ointment" as a treatment for skin troubles will be discontinued by Potter Drug and Chemical Corporation, of Malden, Mass., under a stipulation entered into by this company with the Federal Trade Commission. Representation that either product will of itself heal any ailment or do more than aid or promote healing, or that either product is a germicide, will be discontinued.

Brillo Manufacturing Co. is introducing in the Los Angeles market for the first time "Brillo" soap pads, a soft metal-fibre lubricated pad filled with "Brillo" polishing soap.

"Da-Bo" household cleaner and "Minute" hand cleaner are two new cleanser items being marketed by the Minute Soap Company in Boston. As an introductory offer, a coupon is given with each purchase entitling the customer to a hand-painted Venetian panel of his or her favorite snapshot or photograph.

A special factory offer is being advertised in Oklahoma City, Okla., on "White King Soap." It features the free offer of two cakes of "White King Toilet Soap" with one 24-ounce package of "White King" granulated soap, with all three offered for the price of the granulated soap.

The annual conference and exhibition of Perfume and Cosmetic Buyers opened at the Hotel Commodore, New York, September 9.

The Chicago office of solvay Sales Corp. has been relocated at 1 North La Salle St.

F.T.C. COMPLAINS AGAINST SHAMPOO

Misrepresentation in the sale of beauty shop supplies is alleged in a Federal Trade Commission complaint against Carl E. Koch and Eugene F. Heflebower, of Chicago, doing business under the names of Co-operative Buyers' Service and American Beauty Products Company. It is charged that Co-operative Buyers' Service claimed to operate cooperatively as a purchasing agent, selling merchandise at cost plus a service charge; when in fact it did not have beauty supplies in stock, but filled orders with products of another brand. The complaint also alleges that the respondents, under the name of Cooperative Buyers' Service, advertised "Marlow Soapless Shampoo Oil" and sold it, when in fact this name was an imitation of a name under which a similar article called "Mar-O-Oil Shampoo" had for several years been manufactured and sold by J. W. Morrow Manufacturing Company of, Chicago. American Beauty Products Company was erroneously represented as a manufacturer and importer, according to the complaint. The respondents have been given until Friday, October 4, to show cause why an order to cease and desist from the representations alleged should not be issued.

Metasap Chemical Co., Harrison, N. J., has recently published a booklet dealing with the subject of metallic soaps. Manufacture of these products is discussed briefly, and information is given as to their physical and chemical properties. Another section of the booklet deals with their use in various industries including the manufacture of paints, printing inks, lubricants, cosmetics, textile specialties, insecticides, etc. Methods of analysis are also given.

At the time of adjournment of Congress, August 26, the Copeland Bill, S-5, regulating the sale of food, drugs and cosmetics, was still in committee. It had passed the Senate, and was being held in the House under consideration by the subcommittee of the Committee on Interstate and Foreign Commerce. The legislation did not expire with the adjournment of Congress but will occupy an unchanged status when the second session of the 74th Congress convenes next January.

A meeting of the Premium Advertising Association of America is to be held in the Hotel Pennsylvania, New York, September 23 to 27, in connection with the Atlantic Coast Premium Exposition. Among the papers to be delivered will be one by Howard S. Cook, advertising manager of John T. Stanley Co., New York, entitled "Using Premiums to Strengthen Dealer Cooperation".

John S. Zinsser has been elected president and director of Sharpe & Dohme, Inc., Philadelphia, to succeed A. Homer Smith whose retirement is scheduled to take effect October 1.

RECORD OF TRADE-MARKS

The following trade-marks were published in the August issues of the *Official Gazette* of the United States Patent Office in compliance with Section 6 of the Act of September 20, 1905, as amended March 2, 1907. Notice of opposition must be filed within thirty days of publication. As provided by Section 14, fee of ten dollars must accompany each notice of opposition.

TRADE MARKS FILED

ROYAL YORK LAVENDER—This with sketch of crown describing soaps. Filed by Shulton, Inc., New York, May 15, 1935. Claims use since Jan. 30, 1935.

PICTURE OF WOMAN in kitchen, describing cleaning preparations. Filed by Fitzpatrick Bros., Chicago, May 18, 1935. Claims use since May 1, 1935.

SOLCO—This in solid letters describing washing solution. Filed by Solvent Compounds, Inc., San Francisco, June 7, 1935. Claims use since March 1, 1935.

ZAX—This in solid letters describing hand cleanser. Filed by King Products Co., Middletown, Conn., June 15, 1935. Claims use since May 18, 1935.

RUST GO—This in solid letters describing cleaning compound. Filed by A. L. Wilson Chemical Co., Jersey City, N. J., Jan. 24, 1935. Claims use since June 5, 1932.

SKETCH OF FLOWER and sprayer bearing letters "DW" describing insecticide. Filed by Baldwin Laboratories, Saegertown, Pa., May 11, 1935. Claims use since Dec. 15, 1933.

TEN-Z-TEN—This in solid letters describing antiseptic. Filed by Malbin Co., New York, May 23, 1935. Claims use since Dec. 16, 1934.

BATH-O-PINE—This in solid letters describing cleansing compound. Filed by Ferris Products, Chicago, May 27, 1935. Claims use since October, 1934.

FREY'S—This in solid letters on carton illustrated by dog's head, describing flea powder. Filed by Black Flag Co., Baltimore, May 28, 1935. Claims use since May 22, 1935.

GAMADIN—This in solid letters describing antiseptic. Filed by Farastan Co., Philadelphia, June 1, 1935. Claims use since May 18, 1935.

SWAN—This in solid letters describing water softener. Filed by King Laboratories, Wilmerding, Pa., June 10, 1935. Claims use since Jan. 5, 1935.

WESTOFUME—This in solid letters describing fumigant. Filed by West Disinfecting Co., L. I. City, N. Y., June 12, 1935. Claims use since May 28, 1935.

FLUSHTEX—This on reverse plate describing closet bowl cleaner. Filed by United Products Co., Peoria, Ill., June 10, 1935. Claims use since Jan. 1, 1934.

DENTURINE—This in solid letters describing tooth powder. Filed by Hope, Inc., New York, June 22, 1935. Claims use since August, 1930.

AMOCO—This in solid letters describing auto polish. Filed by American Oil Co., Baltimore, June 22, 1935. Claims use since June 4, 1934.

PER-MA-SAN—This in solid letters describing cleansing powder for dental plates. Filed by Per-Ma-San Laboratory, Union City, N. J., June 27, 1935. Claims use since Dec. 15, 1934.

NOSQUITO—This in solid letters describing mosquito immunizing agent. Filed by Broemmel Laboratories, San Francisco, June 28, 1935. Claims use since June 10, 1935.

KAR-NU—This in outlined letters describing polish. Filed by Kar-Nu Co., Cincinnati, May 17, 1934. Claims use since Feb. 28, 1934.

G-MEN—This with sketch of eagle describing soap and shaving cream. Filed by Spatz Bros., New York, June 27, 1935. Claims use since June 25, 1935.

PHENOSOL—This in solid letters describing antiseptics and disinfectants. Filed by John Carle & Sons, New York, June 26, 1935. Claims use since 1907.

JAXWAX—This in solid letters describing dance floor wax. Filed by John A. Schillinger, Madison, Wis., June 7, 1935. Claims use since June 1, 1933.

TICK—This in solid letters describing liquid floor wax. Filed by Derris, Inc., New York, June 28, 1935. Claims use since June 14, 1935.

TRADE MARKS GRANTED

326,773. Polishes and Detergents. American Chemical Paint Co., Ambler, Pa. Filed November 5, 1934. Serial No. 357,886. Published May 28, 1935. Class 4.

326,827. Soaps. Tattoo, Inc., Chicago. Filed April 5, 1935. Serial No. 363,443. Published May 28, 1935. Class 4.

326,829. Wax Composition for Polishing. Socony-Vacuum Oil Co., New York. Filed March 29, 1935. Serial No. 363,188. Published May 28, 1935. Class 16.

326,831. Sweeping Compound. Loyd L. Shafer, Council Bluffs, Iowa. Filed March 28, 1935. Serial No. 363,121. Published May 28, 1935. Class 4.

326,853. Preparation for Cleaning Tile, Porcelain, Enamel. Kay Tee Products Co., Brooklyn. Filed April 13, 1935. Serial No. 363,710. Published May 28, 1935. Class 4.

326,862. Composition for Cleaning Fabrics. W-B Chemical Co., New York. Filed October 10, 1934. Serial No. 356,978. Published March 12, 1935. Class 4.

326,865. Insecticides, Fungicides, Parasiticides and

Chemicals. Westwell Chemical Co., Whittier, Cal. Filed Aug. 27, 1934. Serial No. 355,502. Published May 21, 1935. Class 6.

326,932. Insecticides, Disinfectants, Deodorants, and Fungicides. August Trautman, Brooklyn. Filed March 6, 1935. Serial No. 362,199. Published May 28, 1935. Class 6.

326,946. Insecticides, Germicides, Bactericides, Fungicides, and Disinfectants. Monsanto Chemical Co., St. Louis. Filed April 17, 1935. Serial No. 363,882. Published June 4, 1935. Class 6.

326,972. Antiseptic Chemical Compound. Sanitized, Inc., New York. Filed September 12, 1934. Serial No. 355,984. Published May 28, 1935. Class 6.

326,990. Tooth Powders. L. M. Brock & Co., Lynn, Mass. Filed April 11, 1935. Serial No. 363,627. Published May 28, 1935. Class 6.

326,992. Shampoo. Nestle-Lemur Co., New York. Filed April 11, 1935. Serial No. 363,635. Published May 28, 1935. Class 6.

327,017. Beer Pipe Cleaning Compound. Joss Equipment and Service Corp., New York. Filed March 21, 1935. Serial No. 362,826. Published May 28, 1935. Class 6.

327,029. Liquid and Powder Insecticides. Walter M. Willett, San Francisco. Filed April 1, 1935. Serial No. 363,355. Published June 4, 1935. Class 6.

327,033. Insect and Bug Powder and Spray. Safety Fumigant Co., Boston. Filed April 4, 1935. Serial No. 363,406. Published June 4, 1935. Class 6.

327,094. Preparations for Cleaning Beer Pipes. Martin Chemical Co., Manchester, Conn. Filed February 5, 1934. Serial No. 347,106. Published June 19, 1934. Class 6.

327,261. Insecticide Dusting Attachments for Vacuum Cleaners. Air-Way Electric Appliance Corp., Toledo. Filed January 6, 1933. Serial No. 333,696. Published June 11, 1935. Class 23.

327,273. Milk Soap. Red Cross Pharmacy, Inc., Cleveland. Filed March 23, 1935. Serial No. 362,922. Published June 11, 1935. Class 4.

327,283. Cleanser. Knight-Hyma Co., Ann Arbor, Mich. Filed April 3, 1934. Serial No. 349,469. Published June 12, 1934. Class 4.

327,288. Detergents. Colgate - Palmolive - Peet Co., Chicago. Filed October 13, 1933. Serial No. 342,426. Published December 5, 1933. Class 4.

327,294. Saponaceous Compounds. Yardley of London, Inc., Union City, N. J. Filed March 8, 1935. Serial No. 362,281. Published June 11, 1935. Class 4.

327,371. Toilet Soap. Colgate-Palmolive-Peet Co., Jersey City, N. J. Filed April 9, 1935. Serial No. 363,555. Published June 18, 1935. Class 4.

327,376. Metal Polish. Sparkling Co., Cincinnati. Filed April 10, 1935. Serial No. 363,594. Published June 18, 1935. Class 4.

327,398. Antiseptic. Warren - Teed Products Co., Columbus, Ohio. Filed March 14, 1935. Serial No. 362,541. Published June 18, 1935. Class 6.

327,432. Antiseptic Solutions and Compounds. Hilliard Products Co., Wilmington. Filed April 6, 1935. Serial No. 363,459. Published June 18, 1935. Class 6.

327,440. Polishes, Dressings, and Cleaners for Shoes. Jared Holt Co., Albany. Filed April 17, 1935. Serial No. 363,863. Published June 18, 1935. Class 4.

327,470. Insecticide. Bloomingdale Bros., New York. Filed April 19, 1935. Serial No. 363,965. Published June 18, 1935. Class 6.

327,527. Tooth Powder. Vor-Sal Laboratories, Chicago. Filed April 2, 1935. Serial No. 363,350. Published June 18, 1935. Class 6.

327,531. Industrial Surface Cleaning Preparation. Frederick Gumm Chemical Co., Union City, N. J. Filed April 1, 1935. Serial No. 363,282. Published June 18, 1935. Class 4.

327,533. Drain Pipe Cleaner, Closet Bowl Cleaner, Boiler Cleaner. John Sunshine Chemical Co., Chicago. Filed March 30, 1935. Serial No. 363,242. Published June 18, 1935. Class 6.

327,821. Mothproofing Materials. Monite Co., St. Louis. Filed April 22, 1935. Serial No. 364,113. Published June 25, 1935. Class 6.

◆

Palmer-Schuster Company after September 1st will have its office and warehouse space at 2775 Pittsburgh Avenue, Cleveland. Offices were formerly at 1514 Prospect Avenue. The company carries a complete line of raw materials and containers for the insecticide trade.

◆

The American Oil Chemists' Society will hold their 1935 fall meeting in Cincinnati October 17 and 18. The headquarters hotel is the Netherland Plaza, which will house practically all of the activities of the meeting.

◆

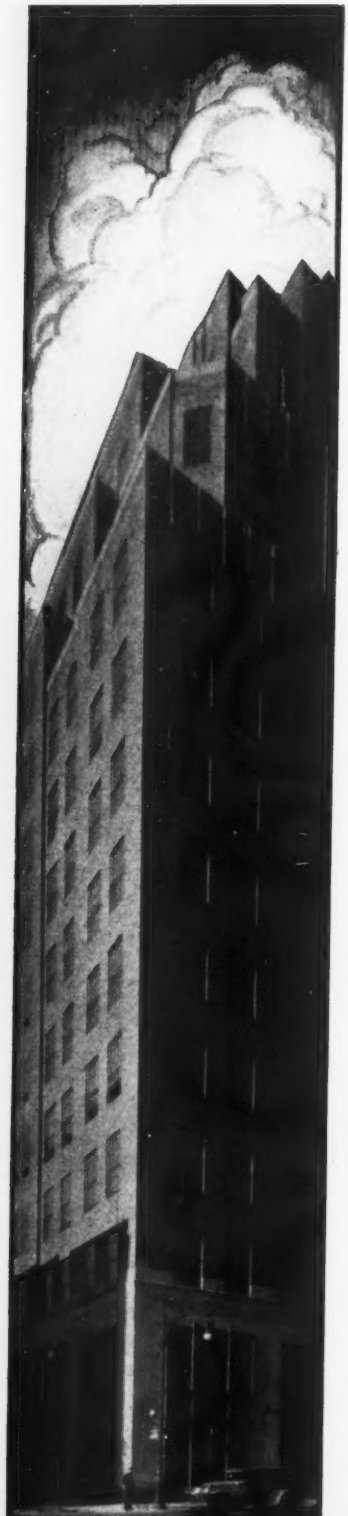
The name of Swann Chemical Co., Anniston, Ala., a subsidiary of Monsanto Chemical Co., St. Louis, has been changed to the Monsanto Chemical Co. of Alabama. Administrative and sales offices of the Alabama subsidiary have been moved to St. Louis.

◆

Alsop Engineering Corporation, New York, has just appointed George E. Wilcox its representative in the Pittsburgh territory. His office is located at 1201 Metropolitan St., Pittsburgh.

SHAMPOOS—RIGHT AND WRONG!

Shampoos clear and shampoos cloudy, shampoos too strong and shampoos too weak, and shampoos just right! A discussion of Modern Shampoos by Ralph H. Auch, chief chemist for the Zanol Products Company, will be published in an early issue of SOAP. A practical discussion of shampoo characteristics and manufacture by a practical man with long experience.



THE PORT AUTHORITY COMMERCE BUILDING WHERE FRITZSCHE NOW OCCUPIES TWO ACRES OF SPACE ON THE TWELFTH FLOOR.

New home of FRITZSCHE BROTHERS in PORT AUTHORITY COMMERCE BUILDING largest and most modern of its kind . . . .

The continuous growth of our business both in volume and in scope has necessitated another removal in our sixty-four years of business existence. We have taken full advantage of this opportunity to equip our plant with every device which might add to the efficiency of our service and to the excellence of our offerings.

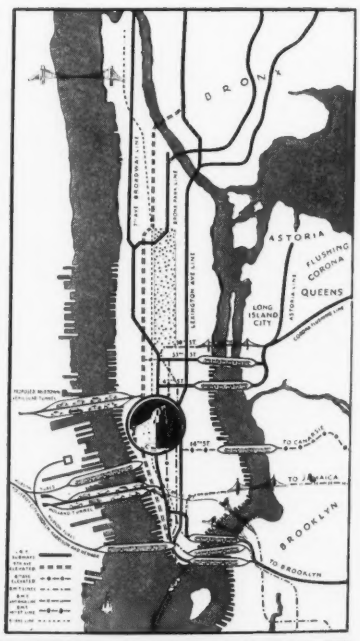
An extensive air conditioning plant, scientifically designed to meet our special needs, enables us to store, compound and handle our raw materials and finished compositions under ideal conditions of temperature and humidity constantly maintained year round within narrow limits.

Greatly increased laboratory facilities, both for research and control, extend considerably our opportunities for service to our customers and make possible greater and more frequent contributions to the science of applying fragrance and flavor to a large and growing multitude of commercial products.

Selection of the Port Authority Commerce Building was influenced by its ready accessiblity and its unequalled transportation facilities. It is an inland freight terminal for the eight great trunk line railroads entering New York City, thus bringing every town and city in the United States practically to our door step. Post Office and Railway Express Agency are located in the building. Four fast elevators bear loaded trucks to our own floor, giving us street level conditions under cover although two hundred feet above pavement.

It is our belief that the advances thus effected will enable us to improve markedly the quality of a line and the efficiency of a service already unmatched in our special field of endeavor.

A cordial invitation is extended to all our friends to visit us when calling in New York.



FRITZSCHE Brothers, inc.

816 WEST 8TH STREET LOS ANGELES CAL
Proprietors of PARFUMERIES de SEILLANS Seillans, France
FRITZSCHE BROTHERS of Canada Ltd. 77 79 Jarvis St, Toronto Canada

PORT AUTHORITY COMMERCE BLDG.
76 NINTH AVENUE, NEW YORK, N. Y.
118 WEST OHIO ST CHICAGO ILL

New Equipment and Bulletins

IF YOU want additional information on any of the items described below or if you want any of the bulletins, catalogs, etc., write to the MacNair-Dorland Co., Inc., 254 West 31st St., New York, mentioning the number of the item.

151. Audobon Wire Cloth Corp., Philadelphia, has issued three new catalogs, Nos. 40, 41 and 42, describing its complete line of wire cloth for various industrial uses.

152. Pennsylvania Pump & Compressor Co., Easton, Pa., has issued two bulletins, Nos. 163 and 164, describing respectively its steam booster compressors and its air cushion valve compressors. Photographs show details of construction and specifications are covered in a series of tables.

153. Ripley Mfg. Co., Wayne, Mich., is now offering a bin level indicator which gives an automatic check on the level of bulk material stored in bins. A folder describing the new "Bin-Dicator" is available on application.

154. International Nickel Co., New York, has just issued a new bulletin entitled "Preventing Contamination in Soap Making", giving complete engineering and chemical data on the properties of Monel metal and nickel with particular reference to their use in the prevention of contamination by corrosion. Photographs of soap plant installations illustrate Monel metal steam jacketed kettles, nickel clad steam jacketed soap crutchers, specially surfaced amalgamators, plodders, cutters, crutchers, mixers, coils, etc. Copies of the eight-page bulletin are available on request.

155. Clifton Chemical Co., New York, has just issued a folder listing and describing its complete line of base and liquid shampoos, lather and brushless shaving creams.

156. Alsop Engineering Corp., New York, is introducing two new pieces of equipment for container labeling called the "Labelit" and the "Stixit". A descriptive folder giving complete details about the new equipment is available.

157. Roots-Connersville Blower Corp., Connersville, Ind., has issued a folder describing the "Victor-Acme" rotary positive blowers for pressure or vacuum service.

158. U. S. Bottlers Machinery Co., Chicago, has recently brought out a new two-tube vacuum cleaner for cleaning bottles and containers. The machine is portable and has a capacity of 30 to 40 containers per minute. It is not the blower type cleaner, but operates on the principle of drawing from within the container to be cleaned any dirt or foreign matter present. It can be adapted to handling various shapes and sizes of containers.

159. Lewis-Shepard Co., Watertown, Mass., has a folder available describing its complete line of material handling equipment, including racks, stock boxes, trucks, platforms, barrel stands, lifts, stackers, portable elevators, etc.

160. Permutit Co., New York, has issued a booklet dealing with the mining, processing, manufacture and use of "Zeolite" water softeners. The factors responsible for hardness of water and the principles behind softening hard waters by the use of "Zeolite" softeners are fully considered.

161. Kux-Lohner Machine Co., Chicago, has just issued a folder illustrating and describing its line of automatic continuous rotary tablet presses.

162. Fuld Bros., Baltimore, is introducing a new liquid wax of the self-polishing type for floor treatment under the name "Permanent Gloss". A folder describing the new product is available to SOAP readers.

New Patents

Conducted by

Lancaster, Allwine & Rommel

Registered Attorneys

PATENT AND TRADE-MARK CAUSES

815 15th St., N. W., Washington, D. C.

Complete copies of any patents or trade-mark registration reported below may be obtained by sending 25c for each copy desired to Lancaster, Allwine and Rommel. Any inquiries relating to Patent or Trade-Mark Law will also be freely answered by these attorneys.

No. 2,007,166, Alkylolamine Soaps and Related Products. Patented July 9, 1935 by Walter J. Hund and Ludwig Rosenstein, San Francisco, California. The process for the recovery of free alkylolamine from its compound with a fatty carboxylic acid which comprises liquefying the compound by the application of heat and distilling to separate the alkylolamine from the fatty carboxylic acid.

No. 2,007,721, Insecticides. Patented July 9, 1935 by Frank Floyd Lindstaedt, Oakland, Calif., assignor to Hercules Glue Company, San Francisco, Calif. A new composition of matter for use as an insecticide, ovicide, and parasiticide comprising alginic acid having added thereto nicotine alkaloid in quantity greater than that sufficient to satisfy the valance of the alginic acid.

No. 2,007,722, Insecticide. Patented July 9, 1935 by Frank Floyd Lindstaedt, Oakland, Calif., assignor to Hercules Glue Company, San Francisco, Calif. The substantially water insoluble solid resulting from the reaction of a volatile alkaloid and rosin.

No. 2,007,974, Soap Manufacture. Patented July 16, 1935 by Charles E. Kaltenbach, Cranford, N. J.; Herman Muhlenbrock, Juana C. Kaltenbach, and Roger W. Aldrich executors of said Charles E. Kalbenbach, deceased.

(*Turn to Page* 51)

WARNER Quality
PIONEERED FOR NEARLY 50 YEARS
CAUSTIC SODA
HIGHEST GRADE
(ELECTROLYTIC)
IN EITHER
FLAKE, SOLID OR LIQUID FORM
CARBON TETRACHLORIDE
REDISTILLED WATER-WHITE
SUPPLIED ALSO IN COMBINATION WITH OTHER SOLVENTS TO MEET INDIVIDUAL REQUIREMENTS
EARLIEST PRODUCTION IN THIS COUNTRY
TRI-SODIUM PHOSPHATE
FIRST PRODUCER OF A FREE-FLOWING AND NON-CAKING PRODUCT NATIONALLY KNOWN FOR ITS UNIFORM QUALITY
TETRA SODIUM PYRO PHOSPHATE
AN OPPORTUNITY TO SUBMIT SAMPLES AND QUOTATIONS IS SOLICITED

STANDARD WARNER CHEMICALS

WARNER CHEMICAL COMPANY

Pioneer Producers 1886

CHRYSLER BUILDING
155 EAST SUPERIOR STREET, CHICAGO

NEW YORK CITY
70 RICKARD STREET, SAN FRANCISCO

DIVISION OF WESTVACO CHLORINE PRODUCTS

CONTRACTS AWARDED

Colgate-Palmolive-Peet Co. has been awarded a contract covering 100,000 lbs. laundry soap for the U. S. Army Quartermaster at Jeffersonville, Ind., at a price of 3.4c lb. Hunnewell Soap Co., Cincinnati, awarded 20,000 cakes scouring soap at 1.85c cake. Crystal Soap & Chemical Co., Philadelphia, awarded 5,000 cakes polish at 5.9c. Charles Chemical Co., Scranton, awarded 200 pints metal polish at 8 1/3c pint. Jas. Good, Philadelphia, awarded 10,000 caustic soda at 5.44c can.

Swift & Co., Chicago, has recently been awarded contracts covering 6,000 lbs. laundry soap for Pensacola, Fla., and 8,000 lbs. for Shreveport, La., at a price of 4c per lb. Colgate-Palmolive-Peet Co., awarded 9,000 lbs. for Columbus, Ohio, at 3.57c and 12,000 lbs. for Charleston, W. Va., at 3.66c. Iowa Soap Co., awarded 3,450 lbs. trisodium phosphate for Shreveport at 3.8c.

J. Eavenson & Sons, Camden, N. J., was low bidder on 3,000 lbs. laundry soap for the U. S. Army Quartermaster at Jeffersonville, Ind., in a recent bidding, with a quotation of 7.42c lb. Cudahy Packing Co., Chicago, was low bidder on 4,000 lbs. laundry soda with a bid of 2.23c lb.

Hunnewell Soap Co., Cincinnati, was low bidder on 2,100 cakes grit soap, type B, for the U. S. Army Quartermaster at St. Louis, in a recent bidding, with a quotation of 2c. Iowa Soap Co., Burlington, Ia., was low bidder on 17,820 lbs. laundry soap with a figure of 3.26c.

Low bidder on 21,000 gals. toilet soap in a recent U. S. Treasury Dept. bidding was Peebles Chemical Co., with a price of 15.6c. Mione Mfg. Co. entered the low bid of 4.74c. on 15,000 lbs. soap paste.

Colgate-Palmolive-Peet Co. has been awarded a contract covering 950,000 lbs. laundry soap for the Chicago U. S. Army Quartermaster at a price of 3.4c. Swift & Co. awarded 11,000 cakes grit soap at 2.12c. Hunnewell Soap Co. awarded 60,000 cakes grit soap at 1.7c.

Colgate-Palmolive-Peet Co. has been awarded a contract covering 43,200 lbs. laundry soap for the Jeffersonville U. S. Army Quartermaster at a price of 3.9c lb. Hunnewell Soap Co. awarded 4,600 lbs. grit soap at 3.75c lb. Procter & Gamble Distributing Co. awarded 33,300 lbs. laundry soap at 3.52c lb.

Low bidder on 12,000 lbs. scouring powder in a recent U. S. Treasury Dept. bidding was Armour & Co., with a quot of 1.04c. Newell-Gutradt Co. was low bidder on 10,000 lbs. grit soap with 5.76c. Armour & Co. entered the low bid of 10.9c on 20,000 lbs. milled soap, and Procter & Gamble Distributing Co. entered the low bid of 6.37c on 100,000 lbs. toilet soap.

Merck & Co., Rahway, N. J., was low bidder on 120 gals. of disinfectant for the U. S. Treasury Department in a recent bidding, entering a quotation of 40c. Other bids included the following: Jas. Good, Inc., Phila., 64.9; West Disf. Co., L. I. City, 65c; and H. H. Plowfield, $1.40.

OIL AND FAT PRICES LOWER

The oils and fats price index, as compiled by the Bureau of Raw Materials for American Vegetable Oils and Fats Industries, decreased from 104.8 in June to 100.1 in July. This index was 73.7 in July of last year. The index numbers of various oils and fats for the months of June, 1935; July, 1935; and July, 1934, are as follows:

	July 1935	June 1935	July 1934
Corn oil	141.0	143.6	102.1
Cottonseed oil	147.6	158.7	89.1
Stearin, oleo	83.2	85.7	57.6
Coconut oil	40.0	47.6	37.0
Grease	97.1	106.1	59.5
Olive oil	100.1	98.9	101.0
Olive oil foots	111.4	113.3	99.5
Palm oil	51.4	57.8	32.8
Palm kernel oil	45.2	48.7	36.2
Tallow	87.3	95.4	54.4
Whale oil	112.4	116.9	103.4

A cake of soap and a tube of shaving cream was presented to every member of the audience at the recent Malvern Festival in England, the famous annual theatrical festival organized, chiefly in honor of Bernard Shaw, by Sir Barry Jackson. Sir Barry's hobby is the theater, but his business is the vegetable oil and soap trade. Roy W. Limbert, Sir Barry Jackson's business manager, was responsible for the idea.

A London concern has under construction in Germany what is reported to be the largest floating factory for whale oil production ever built. The Hector Whaling Company is one of the important factors behind the new venture which will enlist a share capital of over a million dollars.

Poland has recently adopted an excise tax of 0.50 zloty per kilo on vegetable, hardened and mixed fats. Exemptions may be authorized by the Minister of Finance.

Market Report on

TALLOW, GREASES, AND OILS

(*As of Sept. 7, 1935*)

NEW YORK—The trend of oil and fat prices was reversed this period, and practically every item in the list moved into higher brackets as the result of resumption of buying by big users. Important domestic consumers took substantial stocks of soapmaking oils at the attractive prices which were being quoted three to four weeks ago, but after the wave of buying had pushed fat prices up substantially they again seemed to lose interest in the market which was practically nominal on many oils at the close. There was also substantial buying for foreign account as European buyers took advantage of the low quotations in this market. One report was to the effect that options on six cars of tallow had been snapped up abruptly by Italian buyers in the local market—the eventual use seeming to be for production of glycerine for war purposes. One of the few oils to be quoted lower this period was olive oil, on which slightly lower prices are now available.

COCONUT OIL

Substantial buying on the coast early this period sent the price of copra and coconut oil up rather sharply this period. Pacific coast tanks reached a high of 3¾c and the nominal quotation in the New York market was 4c at the close of this period. Domestic consumers apparently waited until the prise was down where they wanted it and then entered the market with the intention of replenishing stocks. The sharp advance the minute buying appeared seemed to interfere with their buying plans, as the market has been largely nominal at the higher level over the past week or two.

CORN OIL

Corn oil was firmly held this period in company with competing product. Quotations were advanced to a basis of 9¼c, with offerings light.

GREASE

Grease quotations kept in step with the rest of the market this period, gaining over half a cent a pound to bring the house and yellow grades up to an inside figure of 5½c lb.

OLIVE OIL

Freer offerings of olive oil this period were responsible for a drop in local market quotations, and oil is now obtainable as low as 80c per gal. Foots on the other hand were fractionally higher at 8¼c per lb.

PALM OIL

Palm oil shared in the general rise this period, with Niger drums going to 4⅜c per lb. and meeting a good demand.

TALLOW

Tallow advanced three-quarters of a cent a pound this period in the buying wave which hit the soap raw materials market. There was considerable interest shown by foreign buyers as well as domestic users, one of the most conspicuous transactions of the period being the taking up for Italian account of options on six cars of tallow which were offered in the local market.

TREND TO LOW TITER SOAPS

In the August issue of The Hawkeye Bulletin, a regular bulletin service sent to its customers, the Iowa Soap Co., Burlington, Iowa, discusses the meaning of titer and the trend toward low titer soaps for industrial washing. The bulletin said in part: "In ordinary language, 'titer' refers to the solidifying point of the fat or oil used in making the soap. In fact, it really is the solidifying point of the fatty acids obtained by splitting up the soap made from the fat or oil. Titer is an indication of the washing properties of the soap. For example, a high titer soap with a titer of 42° is particularly adapted for hot water washing at temperatures of 160° to 180°. Our low titer soaps with a titer of 20° is an example, are best for cool water washing. Low titer soaps are more easily soluble and suds are better in cool water. Soaps with a low titer are being used more and more for washing of silks, woolens, summer suits, etc. where a high temperature is not allowable. The reverse is true with high titer soaps. They require, hot water to dissolve them and the suds will stand up even at boiling temperatures."

Dr. L. Ruzicka, of the University of Zurich, who has done a great deal of research work in the development of new aromatic products for M. Naef & Co., Geneva, Switzerland, manufacturers of synthetic aromatics, has just completed a two months visit in the United States. Dr. Ruzicka devoted much of his time to a series of lectures at the University of Chicago, followed by an appearance before the recent meeting of the American Chemical Society. M. Naef & Co. are represented in United States by Ungerer & Co., New York.

The annual sports day of the Oil Trades Association of New York was held Tuesday, Sept. 10, at the Pelham Country Club, Pelham Manor, New York, members and guests enjoying a day of golf and the annual baseball game between teams representing the vegetable oil and mineral oil groups. Albert J. Squier, chairman of the entertainment committee, was in charge of the affair, assisted by Clifford T. Weihman, Philip C. Meon and Jos. C. Smith. The privileges of the Pelham Manor Club were made available to the oil traders through the courtesy of Mr. Weihman.

Market Report on

SOAP AND DISINFECTANT CHEMICALS

(*As of September 7, 1935*)

NEW YORK—The market for soap and disinfectant chemicals was fairly quiet over the final weeks of the summer, with buying interrupted by the Labor Day week-end holiday. The soap industry has kept production schedules up pretty well, and shows a better than average consumption of raw materials for the summer months. Recently the glycerin market has pointed upward as a result of the European war scare, and soap makers are now getting more for this by-product of their operations.

ALKALIS

The soap trade continued to be one of the most active consumers of alkalis this period, as soap production kept up well while operations in some other alkali consuming industries showed further seasonal decline. Prices continued to be firmly held at previously prevailing levels.

COAL TAR PRODUCTS

Higher prices were reported on crude naphthalene this period, leading to additional firmness in quotations on the refined grade. The lowest quotations now current on the crude grade are in the neighborhood of $1.95 per cwt. Demand for creosote oil and cresols slowed up somewhat this period.

GLYCERIN

Crude grades of glycerin were quoted higher this period, as the European war scare sent prices mounting both here and abroad. There has been considerable buying for Italian account and this coupled with reduced production abroad has been responsible for the advance. Saponification grade is quoted currently at 10¾c to 11½c and soap lye at 9¾c to 10c per lb.

PYRETHRUM

The large pyrethrum crop and the continuation of severe competition among suppliers has resulted in further reductions in pyrethrum quotations this period. Flowers are now available at 15 to 17c per lb. while 20 to 1 extract may be had at prices ranging from $3.75 to $4.40 per gal.

ROSIN

Rosin quotations have advanced from their previous lows as additional buying interest has been attracted into the market. Stocks were reduced somewhat this past month, but are still far in excess of the totals for a year ago. WG grade gum rosin is quoted currently at $5.90.

The Irish Free State has recently established a quota of 3,500 cwts. for imports of soap, soap powders and soap substitutes during the period from August 19 to November 30.

William A. R. Welcke, treasurer, vice-president and director of Fritzsche Bros., Inc., New York, celebrated the fiftieth anniversary of his first connection with the company on September 7th. It was in 1885 that he first joined the company as a boy of fourteen. He learned the business from the ground up in the years that followed and upon incorporation of the company in 1919 was made treasurer. Upon the death of Frederick E. Watermeyer he succeeded F. H. Leonhardt, now president of the company, as first vice-president.

BRITISH SOAPER PAYS BRIDGE BET

Arthur E. Whitelaw, well known English manufacturer of Preservene Soap and other detergent products, who is as famous in the British bridge world as Culbertson is in the American, has invented a new system of contract, a development of the one-club convention. Recently he wagered that by his system he would bid more accurately than any one else playing by any other system. He backed his challenge for $500, and it was promptly accepted by the brothers A. and L. Wolfers, Culbertson experts.

It was arranged that one hundred hands should be dealt, sorted, bid, but not a card was to be played. The hands were to be analyzed to see whose bidding was superior. However, when Referee Richard Lederer, match manager Mrs. Lowry, the brothers Wolfers, Mr. Kensington (Mr. Whitelaw's partner), the recorders, Mrs. Whitelaw, and the audience had assembled at the Albany Club, London, Mr. Whitelaw himself was found to be too ill to play. Mr. Whitelaw promptly presented a $500 check to the Wolfers and cancelled the match.

NEW PATENTS

(*From Page 47*)

A solid composition of matter having the consistency of ordinary hard soap, the composition consisting essentially of hard soap, and pine oil, the pine oil constituting about 15 to 50 per cent of the composition.

No. 2,009,413, Liquid Cleaner. Patented July 30, 1935 by Fred H. Relyea, Boston, Mass. The method of making a clear transparent uniform liquid petroleum soap or cleaner, which includes emulsifying a light petroleum distillate of the class consisting of gasoline, naphtha, kerosene and benzene, with the aid of an alkali metal silicate, adding thereto a soap and sufficient water to obtain a cleaner of the desired consistency, thereafter adding an essential oil of the group consisting of pine oil, lemon oil, and cedar oil, then stirring the mixture, and finally directly physically separating the clear liquid from the top froth.

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IMPORTERS **DEALERS** **BROKERS**

OLIVE OIL (all grades) and OLIVE OIL FOOTS

Cottonseed Soap Stock

Neatsfoot Oil
Coconut Oil
Cottonseed Oil
Palm Kernel Oil
Stearic Acid
Oleo Stearine
Soya Bean Oil
Palm Kernel Oil (English or German Denatured)

Fatty Acids, Animal & Vegetable

Rapeseed Oil
Teaseed Oil
Castor Oil
Sesame Oil
Lard Oil
Palm Oil
Corn Oil
Peanut Oil
Grease (Animal)
Tallow
Red Oil
Soap Colors
Chlorophyll
Soda Ash
Sal Soda
Talc

Boiled-down Cottonseed Soap

Trisodium Phosphate
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Modified Soda
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Silicate of Soda
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Flake, Solid, Crystal, Liquid

CARNAUBA WAX
(all grades)

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Market Report on

ESSENTIAL OILS AND AROMATICS

(*As of September 7, 1935*)

NEW YORK—Essential oils were fairly active this period, with quite a number of price changes in oils that have been stable over the past few months. The sharp advance in citrous oils which was the principal feature of the market last period seems to have run its course, at least for the present. There has been no reaction and prices seem very firm at the new high levels. The most active feature of the market this period was peppermint oil which has gone through a series of declines. Much of the new crop oil is said to be of poor quality and shows a low menthol content. On the strong side of the market lavender oil and spike lavender were outstanding features.

CANANGA OIL

Native oil was advanced 15c per pound this period by local dealers, bringing the inside quotation up to $2.65 per pound.

CASSIA OIL

One seller of cassia oil advanced his quotations 5c per pound this period, bringing the low figure up to $1.45 per pound. This did not reflect any similar strength in the primary market, which as a matter of fact has been rather soft of late.

CEDARWOOD OIL

Cedarwood oil was advanced 2c per pound by a number of southern producers this period, and the range is now from 22 to 27c per pound. Oregon oil is unchanged in price.

LAVENDER OIL

Both French oil and Spanish spike oil were strong features of the market this period, with quotations advancing. Some firms which had previously been quoting bottom prices withdrew their low quotations this period, moving the lower limit of the market several notches upward.

LEMON OIL

Lemon oil advanced another 5c per pound this period, but the main strength of the recent sharp rise seems to have spent itself. The lowest figure now quoted is $1.40 per pound and prices are being firmly maintained by sellers. The desire of Italy to conserve the lemon crop for troop use is given credit for the advance.

PENNYROYAL OIL

Domestic pennyroyal oil was somewhat lower in price this period, the inside quotation now being $1.75. Imported oil, however, moved the opposite direction in a moderate advance.

PEPPERMINT OIL

A series of price reductions brought the market quotation for natural peppermint oil down to a basis of $1.95 to $2.25 per pound this period. New crop oil is reported to be of poor quality and some may have to be reworked before it will be fit for use.

ROSEMARY OIL

Prices for both U.S.P. and technical oil were higher this period—with U.S.P. quoted at 34 to 45c and technical at 30 to 40c.

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DETROIT TRADE GOLFERS TOP CHICAGO

More than seventy-five members of the Chicago Drug and Chemical Association, Chicago Perfumery, Soap and Extract Association and the Allied Drug and Cosmetic Association of Michigan walked, waded and swam around the Bob-O-Link Country Club course August 20th in quest of the largest array of prizes ever gathered for a Golf Auxiliary tournament. The guests from Detroit, who came over twenty-seven strong, proved the better natators by winning the team prize by a score of 13-5 and nearly 50 per cent of the individual prizes. Following dinner representatives of the three associations spoke and prizes were awarded. The entire Detroit delegation were initiated into the Royal Order of Yellow Dogs. C. C. Marshall presided at the initiation. Net scores of the individual prize winners were as follows: Class A—Elliott (D), 71; Snider (D), 73; Stevenson (D), 74; Thomas Morgan (C), 74; C. C. Marshall (C), 76; William Loewenstein (C), 77; A. C. Drury (C), 77; Van Alsburgh (D), 77, and Al. Stepan (C), 77; Class B—Harvey (D), 73; M. B. Pennal (C), 77; Ray Vicary (D), 77; C. P. Van Schaack (C), 79; Morris (C), 79; William Johnston (D), 79; Carson (C), 80; Langfield (D), 82, and Kitzmiller (C), 82; Class C—J. H. Helfrich (C), 80; Ralph Jennings (C), 82; Boyd (D), 84; Flinn (D), 85; Pauley (C), 86; Zoller (D), 88; Kearns (D), 92; E. M. Tysdal (C), 103, and Doolittle (D), 107. Guest prizes were won by Bishop with 70 and Glanz with 72. Members of the Chicago associations will be guests at the September tournament in Detroit.

◆

The International Broadcasting Company French radio chain, has decided to extend the arrangements for early morning broadcasts from Radio Normandie. Formerly transmitted between 8.15 and 8.45 a. m., the new schedule allows for broadcasts from 8 to 10 a. m. British soap manufacturers have been extensive users of the air on this French station, as advertising programs are not permitted from British stations. Lever Brothers, Hedleys, Colgate-Palmolive-Peet, Crystal Products, Fleming & Whitelaw, and other prominent British soap interests are now sponsoring programs from French stations.

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RED OIL
TALLOWS

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We collect, render and refine all of the raw materials used in our stearic acid and red oil. This close control, not available in any other brand, insures high quality products by eliminating low grade raw materials. Let us submit samples and prices. There is no substitute for quality. Use them in your

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Shaving Soaps
Special Cleaners
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CAUSTIC POTASH
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Sodium Nitrite . Potassium Carbonate

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CURRENT PRICE QUOTATIONS

(As of September 7, 1935)

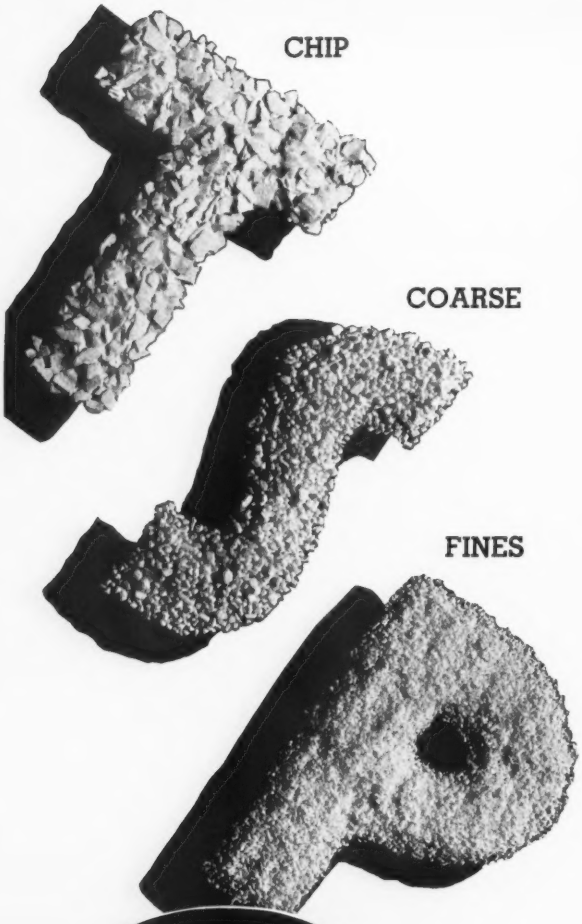
Minimum Prices are for car lots and large quantities. Price range represents variation in quotations from different suppliers and for varying quantities.

Chemicals

Acetone, C. P., drums	lb.	$ .11	$ .12½
Acid, Broic, bbls., 99½%	ton	95.00	100.00
Cresylic, 97½ dk., drums	gal.	.43	.44
97-99%, pale, drums	gal.	.46	.47
Low boiling grade	gal.	.64	.65
Oxalic, bbls.	lb.	.11½	.12¼
Adeps Lanae, hydrous, bbls.	lb.	.16	.18
Anhydrous, bbls.	lb.	.17	.19
Alcohol, Ethyl, U. S. P., bbls	gal.	4.16	4.28
Complete Denat., No. 5, drums, ex.	gal.	.35½	.43½
Alum. Potash lump	lb.	.03½	.03¾
Ammonia Water, 26°, drums, wks	lb.	.02½	.02¾
Ammonium Carbonate, tech., bbls	lb.	.08	.12½
Bleaching Powder, drums	100 lb.	2.15	3.50
Borax, pd., cryst., bbls., kegs	ton	50.00	55.00
Carbon Tetrachloride, car lots	lb.	—	.05¼
L. C. L.	lb.	.07	.08½
Caustic, see Soda Caustic, Potash Caustic			
China Clay, filler	ton	10.00	25.00
Cresol, U. S. P., drums	lb.	.11	.11½
Creosote Oil	gal.	.11½	.12½
Feldspar (200 to 325 mesh)	ton	14.00	15.00
Formaldehyde, bbls.	lb.	.06	.07
Fullers Earth	ton	15.00	24.00
Glycerine, C. P., drums	lb.	.14	.14½
Dynamite, drums	lb.	.13¾	.14½
Saponification, drums	lb.	.10¾	.11½
Soap lye, drums	lb.	.09¾	.10
Hexalin, drums	lb.	—	.30
Kieselguhr, bags	ton	—	35.00
Lanolin, see Adeps Lanae.			
Lime, live, bbls.	per bbl.	1.70	2.20
Mercury Bichloride, kegs	lb.	.71	.76
Naphthalene, ref. flakes, bbls	lb.	.04¾	.05¼
Nitrobenzene (Myrbane) drums	lb.	.09	.11
Paradichlorbenzene, bbls., kegs	lb.	.16	.25
Petrolatum, bbls. (as to color)	lb.	.02	.07¼
Phenol, (Carbolic Acid), drums	lb.	.14¼	.16
Pine Oil, bbls.	gal.	.59	.64
Potash, Caustic, drums	lb.	.06¼	.06½
Flake	lb.	.07	.07¼
Potassium Carbonate, solid	lb.	.07¼	.09½
Liquid	lb.	.03½	.03¾
Pumice Stone, powder	100 lb.	3.00	4.00
Rosins (600 lb. bbls. gross for net)—			
Grade B to H, basis 280 lbs.	bbl.	4.95	5.25
Grade K to N	bbl.	5.25	5.80
Grade WG and X	bbl.	5.90	6.25
Wood	bbl.	4.05	5.00
Rotten Stone, pwd. bbls.	lb.	.02½	.04½
Silica	ton	20.00	27.00
Soap, Mottled	lb.	.04⅛	.04⅜
Olive Castile, bars	lb.	.13	.19
powder.	lb.	.23	.30
Olive Oil Foot	lb.	.07	.07½
Powdered White, U. S. P.	lb.	.19	.21
Green, U. S. P.	lb.	.06½	.08
Tallow Chips	lb.	.07¼	.07¾
Whale Oil, bbls.	lb.	.05	.06
Soda Ash, cont., wks., bags, bbls.	100 lb.	1.23	1.50
Car lots, in bulk	100 lb.	—	$1.05
Soda Caustic, cont., wks., sld	100 lb.	—	2.60
Flake	100 lb.	—	3.00
Liquid, tanks	100 lb.	—	2.25
Soda Sal., bbls.	100 lb.	1.10	1.30
Sodium Chloride (Salt)	ton	11.40	14.00
Sodium Fluoride, bbls.	lb.	.07¼	.08¾
Sodium Hydrosulphite, bbls.	lb.	.19	.20
Sodium Silicate, 40 deg., drum	100 lb.	.80	1.20
Drums, 52 deg. wks.	100 lb.	1.35	1.75
Tar Acid Oils, 15-25%	gal.	.21	.24
Trisodium Phosphate, bags, bbls.	lb.	.03	.03½
Zinc Oxide, lead free	lb.	.06	.06¼
Zinc Stearate, bbls.	lb.	.20	.22

Oils — Fats — Greases

Castor, No. 1, bbls.	lb.	.10¼	.11
No. 3, bbls.	lb.	.09¾	.10½
Coconut			
Manila, tanks, N. Y.	lb.	.04	Nom.
Tanks, Pacific coast	lb.	.03¾	Nom.
Cod, Newfoundland, bbls.	gal.	—	.35
Copra, bulk, coast	lb.	.02	.0210
Corn, tanks, mills	lb.	.09¼	Nom.
Cottonseed, crude, tanks, mill	lb.	—	.09
PSY	lb.	—	Nom.
Degras, Amer., bbls.	lb.	.05¼	.06
English, bbls.	lb.	.04¾	.05½
Neutral, bbls.	lb.	.08	.11
Greases, choice white bbls., N. Y.	lb.	.06⅛	.07¼
Yellow	lb.	.05½	.05⅝
House	lb.	.05½	.05⅝
Lard, City	lb.	.16¾	.17
Compound tierces	lb.	.13¼	.13½
Lard Oil,			
Extra, bbls.	lb.	—	.11¼
Extra, No. 1, bbls.	lb.	—	.10
No. 2, bbls.	lb.	—	.09¼
Linseed, raw, bbls., spot	lb.	.0830	.0870
Tanks, raw	lb.	—	.0770
Boiled, 5 bbls. lots	lb.	—	.0950
Menhaden, Crude, tanks, Balt	gal.	.28	Nom.
Oleo Oil, No. 1, bbls., N. Y.	lb.	—	.13
No. 2, bbls., N. Y.	lb.	—	.12½
Olive, denatured, bbls., N. Y.	gal.	.80	.83
Foots, bbls., N. Y.	lb.	.08¼	.08⅜
Palm	lb.	.04¼	.04½
Palm Kernel, casks, denatured	lb.	.03¾	.04
Peanut, domestic tanks	lb.	.09½	Nom.
Red Oil, distilled bbls.	lb.	.09⅛	.10½
Saponified bbls.	lb.	.09⅛	.10½
Tanks	lb.	—	.08¼
Soya Bean, domestic tanks, N. Y.	lb.	—	.08½
Stearic Acid,			
Double pressed	lb.	.10¾	.11¾
Triple pressed, bgs.	lb.	.13½	.14½
Stearine, oleo bbls.	lb.	.12	.12½
Tallow, special, f.o.b. plant	lb.	—	.06½
City, ex. loose, f.o.b. plant	lb.	—	.06⅝
Tallow, oils, acidless, tanks, N. Y.	lb.	—	.09½
Bbls., c/l N. Y.	lb.	—	.10
Whale, refined	lb.	.07¾	.08



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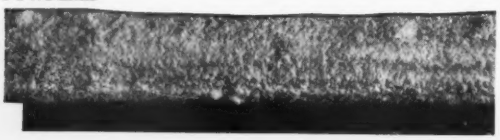

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Bitter, F. F. P. A.	lb.	2.25	2.75
Sweet, cans	lb.	.58	.60
Anise, cans U. S. P.	lb.	.50	.60
Apricot, Kernel, cans	lb.	.22	.25
Bay tins		1.25	1.50
Bergamot, coppers	lb.	1.35	1.90
Artificial	lb.	1.00	1.30
Birch Tar, rect. tins	lb.	.70	.75
Crude, tins	lb.	.14	.16
Bois de Rose, Brazilian	lb.	1.25	1.60
Cayenne	lb.	2.40	2.90
Cade, cans	lb.	.26	.30
Cajuput, native, tins	lb.	.50	.60
Calamus, tins	lb.	3.25	3.50
Camphor, Sassy, drums	lb.	—	.19
White, drums	lb.	—	.20
Cananga, native, tins	lb.	2.65	2.90
Rectified, tins	lb.	2.95	3.50
Caraway Seed	lb.	1.95	2.20
Cassia, Redistilled, U. S. P.	lb.	1.45	1.60
Cedar Leaf, tins	lb.	.52	.65
Cedar Wood, light, drums	lb.	.22	.27
Citronella, Java, drums	lb.	.29	.33
Citronella, Ceylon, drums	lb.	.26	.29
Cloves, U. S. P., tins	lb.	.90	.92
Eucalyptus, Austl., U. S. P., cans	lb.	.27	.30
Fennel, U. S. P., tins	lb.	1.00	1.25
Geranium, African, cans	lb.	4.90	6.75
Bourbon, tins	lb.	4.75	6.75
Hemlock, tins	lb.	.70	.75
Lavender, U. S. P., tins	lb.	3.00	7.00
Spike, Spanish, cans	lb.	1.10	1.60
Lemon, Ital., U. S. P.	lb.	1.40	2.05
Lemongrass, native, cans	lb.	.70	.80
Linaloe, Mex., cases	lb.	1.35	1.50
Nutmeg, U. S. P., tins	lb.	1.20	1.35
Orange, Sweet W. Ind., tins	lb.	2.40	2.50
Italian cop	lb.	2.35	3.25
Distilled	lb.	.65	.70
Origanum, cans, tech.	lb.	.70	.75
Patchouli	lb.	2.75	3.50
Pennyroyal, dom.	lb.	1.75	1.90
Imported	lb.	1.35	1.70
Peppermint, nat., cases	lb.	1.95	2.25
Redis., U. S. P., cases	lb.	2.25	2.45
Petit, Grain, S. A. tins	lb.	1.00	1.15
Pine Needle, Siberian	lb.	.85	.95
Rose, Natural	oz.	5.50	18.00
Artificial	oz.	2.00	3.00
Rosemary, U. S. P., tins	lb.	.34	.45
Tech., lb. tins	lb.	.30	.40
Sandalwood, E. Ind., U. S. P.	lb.	5.00	5.50
Sassafras, U. S. P.	lb.	.75	1.00
Artificial	lb.	.45	.50
Spearmint, U. S. P.	lb.	1.75	1.85
Thyme, red, U. S. P.	lb.	.58	1.02
White, U. S. P.	lb.	.65	1.10
Vetivert, Bourbon	lb.	12.75	14.00
Ylang Ylang, Bourbon	lb.	4.60	7.00

Aromatic Chemicals

Acetophenone, C. P.	lb.	$1.25	$2.25
Amyl Cinnamic Aldehyde	lb.	1.75	2.50
Anethol	lb.	1.00	1.10
Benzaldehyde, tech.	lb.	.60	.65
U. S. P.	lb.	1.10	1.30
Benzyl, Acetate	lb.	.56	1.00
Alcohol	lb.	.65	1.15
Citral	lb.	2.40	2.60
Citronellal	lb.	2.05	2.50
Citronellol	lb.	2.10	2.65
Citronellyl Acetate	lb.	4.50	7.00
Coumarin	lb.	3.10	3.30
Cymene, drums	gal.	.90	1.25
Diphenyl oxide		.85	1.25
Eucalyptol, U. S. P.	lb.	.50	.55
Eugenol, U. S. P.	lb.	2.00	2.50
Geraniol, Domestic	lb.	1.25	2.00
Imported	lb.	2.00	3.00
Geranyl Acetate	lb.	3.00	3.50
Heliotropin	lb.	2.00	2.10
Hydroxycitronellal	lb.	3.50	9.00
Indol, C. P.	oz.	2.00	2.50
Ionone	lb.	3.60	6.50
Iso-Eugenol	lb.	3.00	4.25
Linalool	lb.	1.65	2.25
Linalyl Acetate	lb.	1.85	4.25
Menthol	lb.	3.50	3.60
Methyl Acetophenone	lb.	2.50	3.00
Anthranilate	lb.	2.15	3.20
Paracresol	lb.	4.50	6.00
Salicylate, U. S. P.	lb.	.40	.45
Musk Ambrette	lb.	4.75	6.00
Ketone	lb.	5.00	6.50
Xylene	lb.	1.50	2.50
Phenylacetaldehyde	lb.	4.80	8.00
Phenylacetic Acid, 1 lb., bot.	lb.	3.00	4.00
Phenylethyl Alcohol, 1 lb. bot.	lb.	4.00	4.50
Rhodinol	lb.	5.75	8.00
Safrol	lb.	.60	.62
Terpineol, C. P., 1,000 lb. drs.	lb.	.33	.35
Cans	lb.	.36	.37
Terpinyl Acetate, 25 lb. cans	lb.	.80	.90
Thymol, U. S. P.	lb.	1.40	1.50
Vanillin, U. S. P.	lb.	3.00	3.50
Yara Yara	lb.	1.30	2.00

Insecticide Materials

Insect powder, bbls.	lb.	.15	.17
Concentrated Extract			
5 to 1	gal.	1.25	1.30
20 to 1	gal.	3.75	4.40
30 to 1	gal.	5.60	6.20
Derris, powder—4%	lb.	.41	.45
Derris, powder—5%	lb.	.46	.50
Cube, powder—4%	lb.	.39	.43
Cube, powder—5%	lb.	.44	.48

Gums

Arabic, Amb. Sts.	lb.	.11½	.12½
White, powdered	lb.	.15½	.16½
Karaya, powdered No. 1	lb.	.08	.09
Tragacanth, Aleppo, No. 1	lb.	1.20	1.25
Sorts	lb.	—	.25

Waxes

Bees, white	lb.	—	.33½
African, bgs.	lb.	.22	.23
Refined, yel.	lb.	.27	.28
Candelilla, bgs.	lb.	.16	.17
Carnauba, No. 1	lb.	.51	.53
No. 2, yel.	lb.	.48	.51
No. 3, chalky	lb.	.39	.42
Ceresin yellow	lb.	.36	.38
Paraffin, ref. 125-130	lb.	.04¼	.04½

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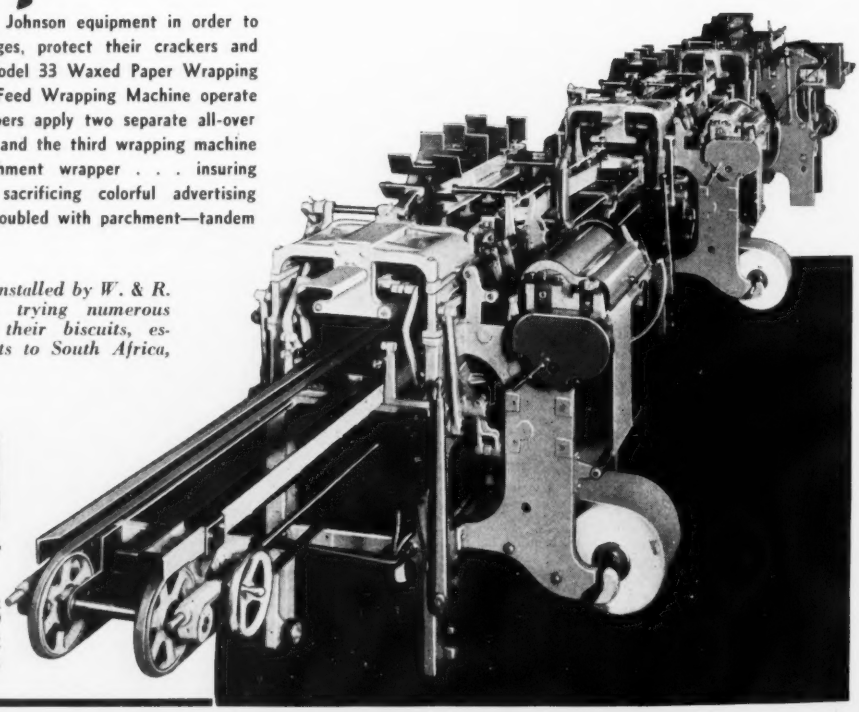
These machines were installed by W. & R. Jacobs Company after trying numerous methods of protecting their biscuits, especially during shipments to South Africa, Australia and Canada.



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COCONUT OIL

(From Page 26)

On account of the fact that coconut soaps have a rather irritating effect on the skin, too large quantities cannot be used in really fine toilet soaps. As a matter of fact, the proportion used should never be over 25 per cent of the total stock. Small quantities of coconut oil are used in soaps for washing woolens and cottons.

In addition to its chemical and physical properties which make it such a valuable soap-making material, coconut oil is held by some to have a germicidal value in soaps. The bactericidal efficiency of coconut oil is increased by the addition of a slight excess of alkali and by the addition of sodium chloride. It has been suggested that for a non-poisonous antiseptic in the form of soap, a pure coconut oil soap would fill the requirements, since it would combine germicidal activity with detergent properties.

AS REGARDS American consumption of coconut oil, the most significant factor at work here recently has been the three-cent excise tax imposed on imported oils last year. Future developments in United States consumption of coconut oil hinge on further legislation affecting the excise tax. Some idea of the American commerce in coconut oil may be obtained from the following table:

Table No. I.

	Imports of Copra	*Imports of Coconut Oil*	*Exports of Coconut Oil*
	Tons	*Tons*	*Tons*
1928	221,172	129,775	13,921
1929	253,543	184,257	13,783
1930	268,009	137,929	12,054
1931	203,073	145,178	8,572
1932	202,429	111,213	12,108
1933	295,032	141,106	13,291
1934	178,228	140,054	12,556

The part played by the different nations of the world in consumption of coconut oil may be gleaned from the following tables:

Table No. II.—Imports of Coconut Oil

	1931	1932	1933	1934
	Tons	*Tons*	*Tons*	*Tons*
United Kingdom (Net Imports)	40,023	22,279	11,443	19,004
United States	145,178	111,213	141,106	140,054
France	6,393	11,437	13,405	7,846
Holland	1,663	5,050	4,200	2,680
Germany	6,758	9,889	3,387	184
Norway	2,982	819	776	1,854
Denmark	6,881	2,715	3,744	3,366
Italy	1,779	905	1,282	1,759
Total	211,657	164,307	179,343	176,747

Literature Cited:

[1] N. Y. Produce Exchange—Rules in Vegetable Oils, Waxes and Fats —Sec. 30-35 (Incl.).
[2] Lewkowitsch, Chemical Technology of Oils, Fats, and Waxes, 6th Ed., P. 656.

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PRODUCTION SECTION

A section of SOAP devoted to the technology of oils, fats, and soaps published prior to Jan. 1, 1932, as a separate magazine under the title, *Oil & Fat Industries.*

Notes on Cold Process Soaps

ONE of the most common errors in making cold process soaps is to transfer the mass prematurely to the frame. This occurs chiefly when working in cold rooms when solidification of the fat mass in the kettle produces the illusion of set-up, owing to the low temperature of the environment. If the observed temperature of the soap mass is lower than the melting point of that particular mass, the soap should not be transferred to the frame, but it should be warmed up until the contents are again liquid. Jacketed kettles are really the only satisfactory type for high-melting fat masses. Failing a jacketed kettle, direct heat may be necessary, with its serious risk of scorching. The fundamental requirement is to attain a temperature throughout the mass which will be higher than the melting point of the original charge. Until this temperature is reached, the mass should under no circumstances be transferred to the frame.

When working with coconut oil alone, it is a mistake to raise the temperature above 35° C. and then stir in the lye. Although saponification occurs more rapidly by this procedure, the finished soap is not pure white, but often grey and unattractive. The temperature before stirring in the lye should not exceed 32° C., especially in summer or in a warm room. A point of exceptional importance in connection with coconut oil is the selection of an oil of low acid value.

An error often made during cold process soap manufacture consists in cutting up the soap while still in the warm condition. This results in a partial loss of the perfume and development of a grey color. However, exposure to daylight generally corrects the color change.

Cold process soaps of a perfectly satisfactory quality can be obtained when using a quantity of caustic lye corresponding to complete saponification. The conditions leading to this result are the selection of raw fats possessing a low acid value, addition of lye at a moderate initial temperature, opportunity for supplementary saponification in the frame at an optimum temperature, and strong agitation. Any sharpness in the finished soap such as may develop when coconut oil is the principal ingredient, can be avoided by the addition of appropriate superfatting agents.

The following are examples of toilet soap formulae by the cold process, using the theoretical quantity of lye:

		Kilos
1.	Coconut oil	22
	Castor oil	3
	Caustic soda, 38° Bé.	14.1
	Perfume	
		Grams
	Lemon oil	75
	Bergamot oil	50
	Geranium oil	25
		Kilos
2.	Coconut oil	25
	Lard	10
	Beef tallow	15
	Caustic soda, 38° Bé.	25.9
	Perfume	
		Grams
	Bitter almond oil	30
	Lemon oil	100
	Lavender oil	30

In formula 2, the mixed fats should be brought to a temperature of 39-40° C. before stirring in the lye.

A suitable proportion of superfatting agent is 4 to 5 per cent, calculated on the total weight of fats, and is preferably incorporated with the fats before adding the lye. To ascertain the exact amount of lye necessary for saponification, it is advisable to estimate first the saponification value of the mixed fats and the strength of the caustic soda. J. Davidsohn. *The Manufacturing Chemist* **6**, 228-31 (1935).

———♦———

Sodium hexametaphosphate is a good dispersing agent in all textile scouring operations and also in many dyeing processes. If used alone in the number 3 bowl of a four-bowl wool scouring train, the lime soaps that are carried into this bowl on the stock will be converted

into active sodium soap. This will make a good suds and will continue the scouring. At the same time the wool gets a more thorough rinsing. Soap is probably the best medium for degumming silk but its tendency to form lime soaps causes difficulties. Sodium metaphosphate used in a rinse bath following the soaping overcomes these. E. B. Bell. *Am. Dyestuff Reporter*, **26,** 427-31 (1935).

Most of the requirements which are imposed on the sulfonated oils of today by the textile industry are dependent not so much on the characteristics of the raw oils from which they are made, as on the properties which the sulfonated oil manufacturer has been able to incorporate into his product. In other words, the choice of raw materials for use in the manufacture of finishing oils is not as important as the methods by which the oils are sulfonated and after-treated. Sulfonation may alter the chemical and physical characteristics to such an extent that as far as analysis is concerned, the original oil is unrecognizable. The finished oil may contain large or small amounts of organically combined sulfur trioxide, free fatty acids, or combined alkali. Raymond A. Pingree. *Oil and Soap*. **12,** 182-6 (1935).

Oxidizing washing agents are prepared by causing hydrogen peroxide or inorganic per-salts to react with fatty alcohol pyrophosphoric acid esters containing at least 8 carbon atoms, or with the reaction products of sodium pyrophosphate with aliphatic alcohol sulfuric esters containing at least 8 carbon atoms. The products may be used for oxidizing and washing indanthrene dyeings and prints, degumming raw silk, pre-scouring cotton, after bleaching cotton, after chlorine bleaching, and for decomposing starch. As an example the mixture of alcohols derived from coconut oil or myristyl alcohol is esterified with pyrophosphoric acid, neutralized with caustic soda and treated with hydrogen peroxide. H. Th. Böhme A.-G. British Patent No. 425,804.

Sulfonated products having wetting and emulsifying properties are obtained by treating tertiary alcohols containing at least one aliphatic residue having 8 or more carbon atoms or a hydroaromatic residue, with agents containing a sulfonating and a dehydrating component. For example, acetone and concentrated sulfuric acid may be used to sulfonate the carbinol obtained from ethyl laurate and ethyl magnesium bromide, or the carbinol obtained from soybean oil and methyl magnesium bromide. Henkel & Cie., G.m.b.H. British Patent No. 424,891.

In determining the quality of the common vegetable oils it is not important to determine all of the constants. The acid and iodine numbers are sufficient for the common oil plants. The Reichert-Meissl number is important in determining the freshness of the oil. In the oils of the castor bean, sesame, perilla, cotton, mustard, rape and poppy the iodine number varies within narrow limits. The acetyl number is characteristic only for oils of the series of ricinoleic acids. E. V. Dodonova and Z. P. Prizemina. *Bull. Applied Botany, Genetics, Plant Breeding* (U.S.S.R.) Ser. 3, No. 5, 223-53.

The relative rates of hydrogenation of the acyl groups in mixed glycerides and of the corresponding free acids are not constant but depend on the mechanical conditions employed and on the configuration of the glyceride molecules. T. P. Hilditch. *Sci. J. Roy. Coll. Sci.* 5, 63-9 (1935).

A mixture of carbon disulfide and ethyl alcohol is used to extract oils. When the solvent is cooled, it is separated into two layers, the lower carbon disulfide layer containing pure oils and the upper alcohol layer impurities. Honen Seiyu K. K. Japanese Patent No. 109,731.

Sulfonated neatsfoot oil which will stand cold is obtained by treating the oil with not more than 15 per cent of sulfuric acid at temperatures not over 5° C. in the presence of an indifferent solvent such as carbon tetrachloride. The product is washed and neutralized by the usual methods. Zschimmer & Schwarz Chemische Fabrik Dolau. German Patent No. 608,693.

Very small amounts of moisture in vegetable oils may be determined rapidly and accurately by means of an improved colorimetric method which uses small samples and a microburet, with copper sulfate as a reagent. I. Sonkhotzkii. *Masloboino Zhirovoe Delo* **1935,** 48-9.

Treatment of the fatty acids of cottonseed oil with air or ozonized oxygen exerts a considerable bleaching action and effects the following modifications in their analytical characteristics: Solidification temperature of the fatty acids increases from 29.6 to 37.9°C; the mean molecular weight at first increases during the first stage of oxidation, and then decreases progressively; the iodine number decreases steadily during the whole period of oxidation; the hydroxy acid content increases considerably, up to 55 per cent. P. Rufimskii. *Chimie & ind.* **32,** 1405.

Rancidity development in olive oil, as indicated by the Kreis test, peroxide number and odor, was more effectively inhibited by the addition of 1 per cent of chlorinated paraffin than by the use of 0.2 per cent of "Nipagin" ($p\text{-}HOC_6H_4CO_2Me$). This antioxidant action, which is slightly greater with a product containing 44 per cent of chlorine than with one containing 33 per cent, together with a certain germicidal power and superfatting action, makes chlorinated paraffins useful as additions to soaps. R. Strauss. *Seifensieder-Ztg.* **62,** 238 (1935).

Deterioration Problems in

LIQUID SOAPS

HAROLD SILMAN, A.I.C.
London, England

THE effects of hydrolysis and rancidity in causing deterioration of soaps in storage constitute an age-old problem in the industry which has never been completely solved, although considerable success has been achieved by research into these troubles, and the frequency of their occurrence has now been largely reduced. The increasing popularity and production of liquid soaps has provided an additional impetus to investigation of the subject, first, because, for a variety of reasons, these soaps have a greater tendency towards deterioration on storing than ordinary solid soaps, and secondly, because the nature of liquid soaps prohibits the use of a number of preservatives which are valuable in this respect in ordinary soaps and are often included.

The methods in use for the production of liquid soaps have been frequently described in the literature and are generally well-known. They are usually based on soft oils and fats such as olive, coconut, palm-kernel, and similar oils, selected and blended. On account of the greater solubility of potash soaps, saponification is generally carried out by the semi-boiled process by means of caustic potash, although certain types of soda soaps, particularly those made from very soft blends of oils, also find considerable application. In the case of the latter only the softest and cleanest oils should be employed to ensure rapid lathering properties, and also because soda soaps made from harder oils tend to give gelatinous solutions which do not flow readily. They are sometimes mixed in small proportion with potash soaps.

After saponification is complete, the soap is dissolved by the addition of water together with various other materials to give the required consistency. Emulsified soaps find a certain market but it is generally necessary to achieve the transparency and brilliance which are usually sought nowadays in a liquid soap. Alcohol is a good aid to transparency but it is, however, very little used in actual practice, some English brands obtaining this effect by the use of other materials, notably glycerine or sugar* The former is to be preferred, although more expensive, having a pleasant and useful action. It must of course be used with discretion, as too high a content of glycerine will diminish the lathering powers of the soap, which would be a serious disadvantage, as abundant lathering properties are essential in soaps of this kind. The use of sugar gives a high brilliancy and transparency, but it often leaves the hands sticky and has been shown to have an unfavorable effect on certain types of skin. It is, moreover, of no use in the soap except for the improved clarity which it imparts.

The methods of producing transparency in liquid soaps are similar in many ways to those used in making the various types of ordinary transparent soaps, the principles involved being the same. Attention should be given, however, to the question of sediment. One of the chief causes of sediment is the formation and deposition of calcium and magnesium soaps in the liquid. This can be obviated by using only thoroughly softened water or distilled water in making up the soap solution. Another common cause of the precipitation of sediment is the settling out of certain potash and soda soaps at lower temperatures. The solubility of soap in water increases considerably with rise in temperature, and some solid soap will therefore separate out when the temperature falls. For this reason the finished soap should, before marketing, be chilled down to the lowest temperature to which it is likely to be ordinarily subjected during use, maintained at this temperature for some hours, and the hydrolysis of soap made from odorous oils will lead to the reappearance of the original odor in an intensified form. The oils and fats must be free from dirt and other foreign matter. Those containing excessive free acid are best avoided, while materials which have even a slight off-odor or show the brownish color characteristic of oxidation should not be used. Highly unsaturated oils are, as is well known, particularly liable to deterioration and it is advisable to keep their proportion as low as possible consistent with the limitations which are imposed by the types of oils which are suitable for liquid which eventually leads to the development of rancidity and off-odors. A similar process sometimes takes place in liquid soaps although it is not apparent to the eye. It only becomes obvious when rancidity has set in to an appreciable extent. This hydrolysis makes it important to use only highest grade oils in liquid soaps, for the clear liquid finally decanted off.

The comparatively large quantity of water present in liquid soaps renders them particularly liable to develop many defects, especially those due to oxidation and hydrolysis. The former process is facilitated by the presence of dissolved oxygen in the water, while hydrolytic processes will naturally take place more readily in a dilute solution. Hydrolysis in solid soaps makes itself evident in the so-called "sweating" of insufficiently dried soaps,

* Editor's Note: These are forbidden in most American specifications and are included very infrequently by manufacturers in the U. S.

soap production. Once rancidity has shown its presence, there is no way of controlling the trouble, which gradually becomes worse.

HYDROLYSIS is inhibited by the presence of free alkali and exact neutrality in the soap is not only unnecessary, but even objectionable. On the other hand, any great excess of alkali is to be deprecated both from the point of view of its effect on the skin, and also on account of its possible unfavorable influence on the stability of the soap, as will be further discussed below.

Complete saponification in a liquid soap is of greater importance than it is in a solid soap on account of the ready tendency towards rancidity, and especially because of the liability to turbidity where unsaponified fat is left in the soap. There are, however, methods of clarification by the addition of substances like precipitated chalk and allowing to stand, subsequently decanting the supernatant liquid. Borax has been said to have a favorable effect on the clarification of liquid soaps. Its presence in solid soaps often leads to the liberation of free fatty acid, but in solution borax is extensively hydrolyzed to form an alkaline solution, and the liberated boric acid does not have too great a neutralizing action. It may therefore be used to advantage in small amount.

Another cause of deterioration which is worth consideration is that due to traces of metals or metallic salts finding their way into the liquid soap. This has already been proved to be an important factor in the spoilage of solid toilet soaps, and the catalytic effect of the metals in promoting decomposition has been shown to be greater in the presence of much water. This can readily be shown by simply exposing solutions of soap containing traces of metallic salts to light. Darkening will be seen to take place in quite a short time.

The metals which have the most effect in promoting auto-oxidation which results in rancidity and discoloration, are copper, cobalt and iron. The rate of oxidation in the presence of these catalysts increases in sunlight. Quite a small amount of metallic contamination, such as can occur through conducting operations in slightly rusted or corroded kettles, is sufficient to cause considerable discoloration. Where the dark color is due to iron salts, bleaching will be only temporarily valuable, as atmospheric oxidation will gradually cause the reduced salts to return to the deeply colored ferric state. Discoloration is apt to occur also as a result of hydrolysis to acid soaps which are more susceptible to oxidation than neutral, or slightly alkaline soaps.

OXIDATION processes are, in the main, responsible for the development of rancidity, and the use of anti-oxidants in soap is already well known. In liquid soaps many of the better known substances which have been shown to have a good effect cannot be employed for reasons which are obvious. For example, rosin or lanoline, which act favorably by apparently forming a protective layer around the soap particles, preventing the access of air and so inhibiting oxidation and hydrolysis, cannot be employed. Neither can zinc oxide or china clay be incorporated.

Reducing agents may, however, be useful although, again, many which have been proved to be of value in ordinary soaps, would tend to cause difficulties. The use, for example, of sodium thiosulfate may, in certain circumstances, result in the precipitation of sulfur in objectionable amounts. Ammonium thiosulfate has been patented for adding to liquid soap as a preservative and to prevent gelatinization, especially in the case of sodium soaps, to enable more concentrated solutions to be used. Sodium soap solutions of 5 per cent strength are gelatinous at ordinary temperatures, while most potash soaps are fluid in solutions above 30 per cent, stronger solutions in either case not being practicable. Later these patentees obtained better results by the use of a mixture of potassium acetate and lactate which, it is claimed, keeps the soap fluid till —8° C., and prevents the occurrence of rancidity. Rancidity can also be inhibited or covered by the presence of safrol. Among other materials which are anti-oxidants and suitable for incorporation in liquid soaps where a tendency towards oxidation is apparent may be mentioned, in addition, sodium silicate and zinc chloride.

THE employment of various types of preservatives in liquid soaps would appear to be necessary in many cases. The choice of a suitable preservative is not an easy matter, there being a number of difficulties which need careful consideration. The substance used must, in the first place, be completely soluble in the soap solution. It should also not be volatile or likely to impair the lathering powers of the soap. Formaldehyde has found some slight application in soap preservation. It is a good reducing agent and has valuable antiseptic properties, and may be of value in some cases although its odor and comparative volatility are against its general use. Owing to the fact that many antiseptics have a favorable influence in inhibiting the development of rancidity in soap solutions, it is possible that microorganisms or certain enzymes may possibly have some effect in bringing about the onset of this condition, but the evidence at present is somewhat conflicting.

An attempt has been made at some kind of a classification of the types of substances which are the best inhibitors of oxidation processes in soaps, and it appears that phenol substituted alcohols are the most effective, followed by reducing agents of various kinds and basic organic compounds such as amines. It should also be noted that the presence of electrolytes, acids, etc. favor oxidation especially when much moisture is present as in a liquid soap. For this reason, although salts or alkali in slight excess are favorable ingredients in liquid soaps, care must be taken that they do not exceed a definite maximum otherwise their deleterious effects will counterbalance their preservative action. Anti-oxidants and basic compounds in soap act by removing the acid products of hydrolysis and oxidation, thus preventing

them from acting as catalysts which will promote further decomposition.

Among the antiseptic substances which are suitable for incorporation in liquid soaps are borax, sodium sulfite, and salicylic and benzoic acids and their sodium salts. Benzoic acid has been proved of some value as an inhibitor of oxidative changes, while the effects of borax have already been referred to. Salicylic acid has been used in medicated liquid soaps as an antiseptic, but it appears to be rather inferior to benzoic acid as a soap preservative. The use of both these acids is limited by their solubility (0.25 per cent in water at 15° C.). The presence of sodium phosphate and silicate, and also potassium carbonate, have a decided preservative value, but they need to be in considerable amount before their influence becomes at all marked.

AS most liquid soaps are perfumed in some way, their properties must be borne in mind when selecting the type of perfume which is to be employed. A special point to consider is the alkali content of the soap. The presence of any considerable excess alkali will give rise to perfuming difficulties. Alkalies saponify esters quite quickly, especially when they are in solution as is the case with liquid soaps. Aldehydes, acids and phenols are also considerably affected, the odor value of the two latter being quickly destroyed by direct combination with the alkali, while esters and aldehydes undergo gradual changes which result in a complete alteration of the character of the odor. In toilet soaps of the solid kind, superfatting is often resorted to as a means of preserving the perfume value but this is clearly not a method which is applicable to liquid soaps.

In this respect benzoic acid is of use as it enables the perfume to be retained longer, while cinnamic acid has also found favor in some quarters. Suitable perfumes should, of course be chosen, the alcohols, ketones or ethers being especially stable in liquid soaps. Thymol is one of the most valuable inhibitors of oxidation in soaps and is also a desirable ingredient from the point of view of its "clean" odor. The influence of the presence of unsaponified fat on the stability of liquid soaps is also particularly marked. It is worthy of note that coconut oil is one of the most difficult of oils to saponify completely, and for this reason soaps containing a high proportion of it are particularly liable to develop rancidity due to oxidation. In view of the fact that the terpenes are excellent oxygen carriers, their presence will markedly increase the tendency towards rancidity in soaps containing coconut oil, or many other soft fats such as cottonseed, peanut, sesame oils, etc. It is the safest rule not to make use of terpene-containing perfumes in liquid soaps if it can be avoided. Similarly, in choosing raw materials and fats for use in the manufacture of liquid soaps, care should be taken that no trace of any bleaching chemical is left in the oil, as many of them, particularly hypochlorites or peroxides, will have a destructive action on a good many perfume materials.

FATTY ACID DETERMINATION IN SOAP

A special 100 cc. flask shaped like an Erlenmeyer but having a neck holding 6 cc. and graduated to 0.01 cc. is used for the practical volumetric determination of fatty acids in soap. Weigh about 3.5 grams of olein equal to 3.91 cc. into the tared flask. Dissolve about 2 grams of soap sample in water and transfer to the flask. Decompose the soap with hydrochloric acid and add 15 grams of sodium chloride. The fatty acids mixed with the olein rise to the top and are forced into the neck of the flask by adding warm saturated salt solution. Place the flask in a hot water bath to melt the acids, cool to 20° C., read the volume and deduct the volume of olein. Calculate the percentage of fatty acids by multiplying the volume by the specific gravity of the fatty acids and dividing by 2. For common fats whose composition is known, the specific gravity of the fatty acids is obtained by multiplying the percentage of each fatty acid in the fat by its specific gravity and combining them. The method is not highly accurate, but is suitable for practical work. W. Stüwe. *Chem.-Ztg.* **59,** 468-9 (1935).

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Russia has planned an extensive program of research for its soap industry. Their edible oil and fat supply is mostly needed for food, so that their efforts are toward substituting colloidal clay for oils and fats as far as possible, and synthesizing fatty acids from mineral oils, of which plentiful supplies are available. New methods for determining detergent action are also being developed. *Chemical Age* **83,** 151-2 (1935).

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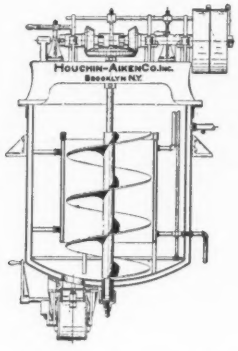
Wax conversion products are obtained by heating natural or synthetic waxes of the ester type with a nitrogenous base containing 1 or 2 nitrogen atoms and at least 1 hydrogen atom attached to each nitrogen atom. The reaction may be accelerated by a metallic catalyst. The products that are relatively soluble in water are useful as soap substitutes or assistants in the treatment of textiles and as emulsifying agents. One example is the modification of beeswax by heating to 150-160° C. with ammonia to give a product useful as an ingredient of polishes containing wax. In another example, sperm oil is heated to 140-150° C. with ethanolamine containing a little water to give a product useful for dispersing fatty oils or for dispersing water in paraffin hydrocarbons to form salves. I. G. Farbenind. A.-G. British Patent No. 415,789.

WHICH SULFONATED OIL?

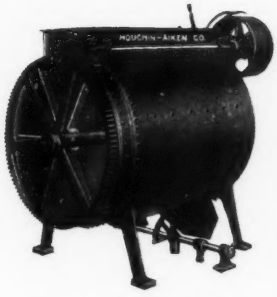
The uses and properties of sulfonated oils,—and also their manufacture,—will be covered by a series of two articles to begin in the next issue of SOAP. The production of the right sulfonated oil for the right purpose, and their application,—an authoritative discussion by A. E. Sunderland.

NEW and *USED*
HOUCHIN SOAP MACHINERY

Perfection Crutcher
Sliding Gate Valve



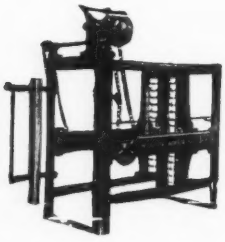
Perfection Crutcher Cross
Section View Plunger
Type Valve



Horizontal Crutcher

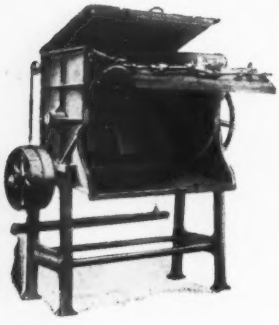
Empire State
Press

Standard
Soap Frame

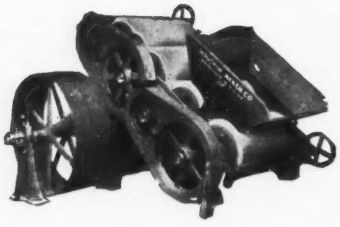


Automatic Power
Slabber

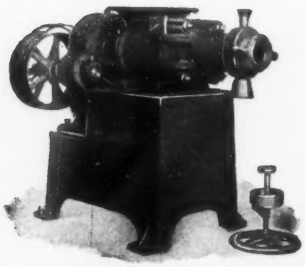
Automatic Power Cutting
Table



Ideal Amalgamator



4-Roll Mill
Mills built with 3 to 12 Chilled
Iron or Granite Rolls



Spur Gear 10″ Screw Plodder
Plodders furnished with 2½″
to 12″ screws

Write Us For Information Regarding MILL-LESS Method for Making Toilet Soap

HOUCHIN MACHINERY CO., Inc.

FORMERLY HOUCHIN-AIKEN CO., INC.

HAWTHORNE, NEW JERSEY

Unsaponified Fat in Soaps

THE methods described for the determination of unsaponified fat in soaps are applicable to most ordinary soaps, but cannot always be applied without some modification to special types such as filled, medicated or highly perfumed soaps.

Free fatty acids.—Boil 100 cc. of redistilled 95 per cent alcohol in a 400 cc. conical flask, add 0.5 cc. of a 0.5 per cent alcoholic solution of phenolphthalein, let cool to 70°C., and neutralize at that temperature with 0.1 *N* alcoholic potassium hydroxide solution. Add 5 grams of soap in thin shavings and dissolve it as quickly as possible by heating. If the solution is not alkaline, titrate with 0.1 *N* alcoholic potassium hydroxide solution until a faint pink color persists for 15 seconds, keeping the temperature at 70°C. Calculate the per cent of free fatty acid in the soap from this titration, expressing it as per cent of oleic acid (molecular weight 282). In some cases it may be desirable to determine the mean molecular weight of the total fatty acids present after separating them from the soap. The molecular weight should then be stated. In the analysis of soaps containing an unusually large proportion of matter insoluble in alcohol it may be desirable to filter the solution before titration, but such a procedure may cause a slight increase in apparent free fatty acid.

Unsaponified neutral fat and unsaponifiable matter.—Weigh 5 grams of soap in thin shavings and dissolve it in about 80 cc. of a mixture of 50 cc. of redistilled 95 per cent alcohol and 100 cc. of water, without heating more than is necessary. Transfer to a 500 cc. separatory funnel, washing the beaker with the remaining 70 cc. of the dilute alcohol. Extract with 100 cc. of ethyl ether while still slightly warm, run off the alcoholic soap layer into a second separatory funnel and repeat the extraction with 50 cc. of ether. Extract the lower layer again with a further 50 cc. of ether, and pour the 3 ethereal extracts into a separatory funnel containing 20 cc. of water. Rotate the separatory funnel gently without violent shaking and, after separation, run off the wash water. Repeat the washing in this way until the water run off is not more than faintly turbid on acidification. Wash the ethereal solution twice more by shaking vigorously with 20 cc. of 0.5 *N* aqueous potassium hydroxide solution, each washing with alkali being immediately followed by washing with 20 cc. of water, shaking vigorously each time. Acidify the last washing with alkali after separating it, and, if the liquid becomes turbid, repeat the washings with alkali and water until the final washing with potassium hydroxide solution remains clear on acidification. Finally, wash with successive portions of 20 cc. of water until the water no longer gives a pink color with phenolphthalein.

Transfer the ethereal solution to a weighed flask and distil off the ether. When nearly all the ether has evaporated, add 2-3 cc. of acetone. By the aid of a gentle current of air remove the solvent completely from the flask, which is preferably almost immersed, held obliquely and rotated in a boiling water bath. Repeat this until the weight is constant. The residue consists of unsaponified neutral fat and unsaponifiable matter. After weighing, dissolve the contents of the flask in 10 cc. of freshly boiled and neutralized alcohol and titrate with 0.1 *N* alcoholic potassium hydroxide solution to phenolphthalein. Not more than 0.1 cc. should be required for neutralization. If more is required, the determination has not been carried out effectively and must be repeated.

Unsaponifiable matter.—Evaporate the solution remaining from the above titration until the bulk of the alcohol is removed. Add 25 cc. of 0.5 *N* alcoholic potassium hydroxide solution and boil under a reflux condenser for one-half hour. Transfer the alcoholic soap solution to a separatory funnel with the aid of 50 cc. of water and repeat the process of ether extraction, washing, etc. described above. Weigh the final residue of unsaponifiable matter. Subtract this weight from the weight obtained above to get unsaponified neutral fat. H. E. Cox and Norman Evers. *Analyst* **60**, 537-41 (1935).

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A wetting agent for alkaline baths is prepared by mixing an alkali-resisting sulfonated oil with a terpene alcohol and a solution promoter. For example a sulfonated ricinate is mixed with pine oil, the monobutyl ether of glycol and water, to give a product with strong wetting power in an alkaline medium. Soc. pour l'ind. chim. à Bâle. Swiss Patent No. 173,382.

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Ortho-alkyl and ortho-aryl derivatives of isourea are used as washing and foaming agents in aqueous baths for the treatment of textiles and as leveling agents in dyeing with basic dyes. Heinz Hunsdiecker and Egon Vogt. British Patent No. 426,508.

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Emulsifying agents are composed of sulfonic acids of high molecular weight or acid esters of sulfuric or phosphoric acid, or of salts of these sulfonic acids in which the radical of the mineral acid or the sulfonic group is jonied to higher fatty acids through alcohol-ether, amino-ether, alcohol-amino-ether or their derivatives. Edmund Waldmann and August Chwala. French Patent No. 779,503.

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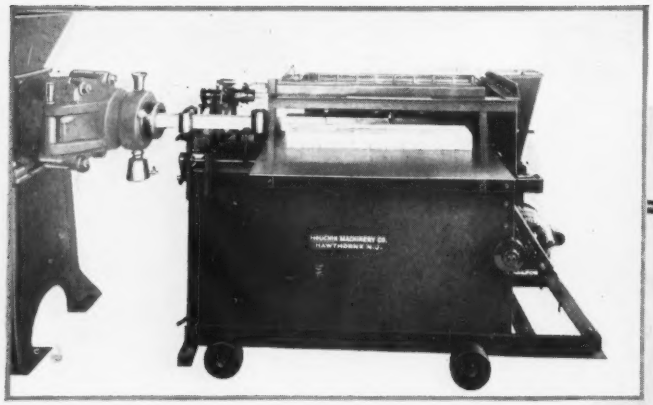
The foaming power of soap can be increased by the addition of a substance such as sodium acid sulfate or sodium carbonate which gives off a gas to form a foamy mass. Ramon R. Fabregas and Julio M. Ostheim. Swiss Patent No. 172,342.



(Left) Houchin Machinery Company's automatic bar cutter with Monel Metal table. These tables are either fabricated from Monel Metal or covered with light gauge sheets of this metal.

TO PROTECT YOUR PRODUCT

Houchin Machinery Company makes extensive use of Nickel, Monel Metal and Nickel-Clad Steel

UNDOUBTEDLY, the greatest single cause of product contamination and rancidity is contact with iron and copper in processing.

In order to assure their equipment producing highest grade products for years to come, the Houchin Machinery Company, Hawthorne, N. J., makers of soap-plant machinery, make extensive use of Monel Metal, Nickel and Nickel-Clad Steel.

Monel Metal and Nickel possess unequalled resistance to corrosion by lye, salt, fatty acids, and other soap ingredients. Not only this, these metals are stronger than common steel, are permanently rust-proof, and do not harm sensitive perfumes, colors and medicaments.

For equipment made of heavy plate, where but one side is subjected to corrosion, Nickel-Clad Steel is largely used. This permanently bonded material combines the corrosion-resistance of pure Nickel, with the economy of plain steel.

You soap-makers demand from your *suppliers* iron-free caustic and iron-free salt. Nickel, Monel Metal and Nickel-Clad Steel are in universal use by producers of both lye and pure white salt. It goes almost without saying that *keeping* these ingredients iron-free during processing is of equal or greater importance to buying them iron-free.

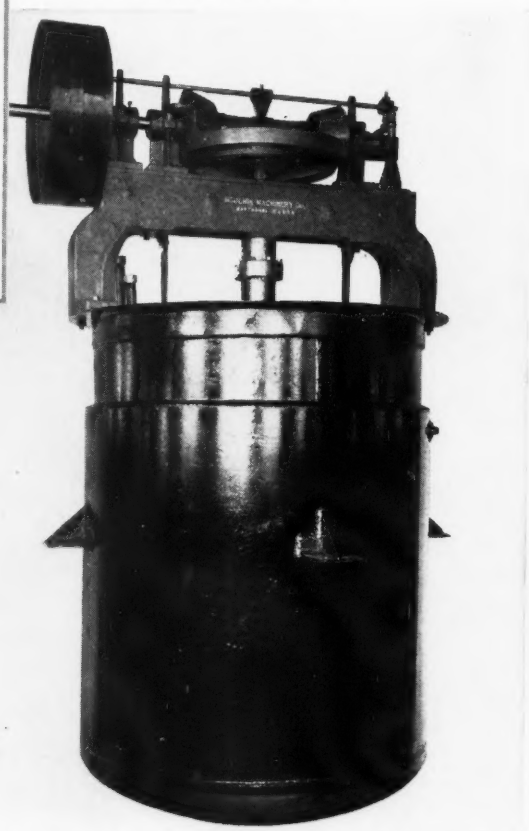
Items in the Houchin line using Monel Metal, Nickel and Nickel-Clad Steel include crutchers, plodders, amalgamators, mixers, tanks, kettles, mills, cake-cutters, stampers and tables.

Soap-makers should write for our new Bulletin C-1 entitled "Nickel and Monel Metal in the Manufacture of Soap." Also Bulletin H-1 on use of Monel Metal in pumps. Both free from

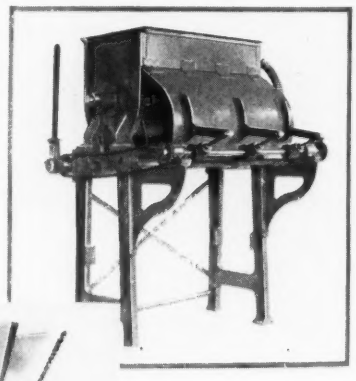
THE INTERNATIONAL NICKEL COMPANY, INC.
67 WALL STREET NEW YORK, N. Y.

MONEL METAL

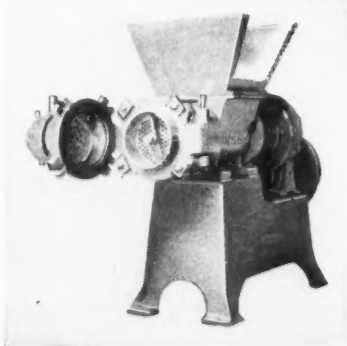
Monel Metal is a registered trade-mark applied to an alloy containing approximately two-thirds Nickel and one-third copper. Monel Metal is mined, smelted, refined, rolled and marketed solely by International Nickel.



(Above) Steam-jacketed soap crutcher (5,000 lb. capacity) built of Lukens Nickel-Clad Steel by Houchin Machinery Company, Hawthorne, N. J., for use in the manufacture of shaving cream. The body is made of 3/16" 10% Nickel-Clad Steel plate to withstand 150 lbs. safe working pressure and subject to approval of the Hartford Steam Boiler Insurance Co. Inside screw, coil and fittings are of Monel Metal. These machines are furnished with and without direct motor drive.



(Right) Typical toilet soap amalgamator with Monel Metal shell, agitator blades and shaft, fabricated by the Houchin Machinery Co., Hawthorne, N. J. The shells of these machines are also built from Nickel-Clad Steel. These metals offer utmost protection to soap and perfumes.



(Left) Combination Plodder built by the Houchin Machinery Co., Hawthorne, N. J. The hoppers and water-jacketed cylinders of these plodders are lined with Monel Metal. The screw, screens, forming plate, cutting knives and the lining of the nose extruding the bar are likewise Monel Metal.

ON PRODUCTS AND PROCESSES

In the manufacture of potassium soaps from fatty acids, a mono- or poly-hydric alcohol of low molecular weight such as ethyl alcohol or glycol, and a potassium or ammonium salt of a carboxylic acid such as oxalic, adipic, succinic or tartaric acid, are added to the mixture. The proportion of alcohol is about 15 per cent, calculated in terms of the final product. Liquid compositions containing up to 45 per cent of fatty acids are obtained in this way. Deutsche Hydrierwerke A.-G. German Patent No. 613,224.

A detergent composition consists of a water-soluble soap, an unsaponifiable oil, water and an emulsifying agent. The latter is a hydroxyethylamine derivative of a higher organic acid. For example paraffin oil or petroleum jelly is mixed with trihydroxyethylamine palmitate or stearate and heated to 90° C. with stirring to form a homogeneous mixture. A solution of soft soap is added together with dried powdered curd soap. After cooling, the product is kneaded and cut into bars and used as toilet soap. Perfumes, abrasives, color or fillers may be added before cooling. Robert Bushby. British Patent No. 424,977.

Soaps for degumming silks are usually made from olive oil. It is difficult to keep the soap bath constant in quality and quantity and any alkalinity will affect the silk or may cause formation of copper or iron salts through contact with metallic parts of the vat, and so affect the silk. All soaps become alkaline on continued boiling, so it is usual to specify a superfatted soap, 1 per cent of free fat being adequate. A silk degumming soap must not contain free alkali. It is usually sodium soap, as potash and ammonium soaps dissociate far more readily. Arthur Jones. *Soap, Perfumery and Cosmetics Trade Review* **8**, No. 6, 34-5 (1935).

The saponification of various fats such as soybean oil tallow, cottonseed oil or coconut oil, proceeds quite rapidly in alcoholic potassium hydroxide solution, being usually complete at the end of 15 minutes. This should be considered in determining free alkali in mixtures produced during the process of soap making. It should be possible to save time in fat-testing laboratories when determining saponification numbers, by reducing the time of refluxing. J. Hetzer. *Fettchem Umschau* **42**, 87-8 (1935).

A detergent agent consists of the acid sulfuric acid esters of the monoalkyl ethers of glycerol in which the alkyl group contains 16-18 carbon atoms. Canadian Industries, Ltd. Canadian Patent No. 352,335.

Agents to prevent precipitation when soaps are used in hard water are made by condensing albumin degradation products or synthetic polypeptides with chlorocarbonic esters of aliphatic or aliphatic-aromatic mono- or poly-hydric alcohols containing at least 5 carbon atoms. These products are also useful in the treatment of textiles, leather and paper. An example of the production of such a product is the heating of gelatin with dilute caustic soda solution, filtering and treating with cetyl chloro-carbonate in the presence of soda ash or caustic soda. I. G. Farbenindustrie A.-G. British Patent No. 425,370.

Superfatted soap is obtained by using esters of high molecular-weight fatty acids and monohydric low-molecular weight alcohols as the superfatting agent. For example, superfatted toilet soap is made by kneading ordinary soap with 4 per cent of ethyl stearate. Liquid soap may be made involving the same principle by melting commercial soft soap with 6 per cent of methyl oleate. Carl Stiepel. German Patent No. 609,634.

A new method has been developed for the determination of the velocity of solution of solid soaps. A stream of water at constant temperature and constant velocity is passed over the surface of the sample piece whose surface is kept constant. The influence of the water contents of the soap on the velocity of solution is relatively small. E. Sauer and W. Burck. *Angew. Chem.* **48**, 171-4 (1935).

Pure soaps are made by dissolving an oxidation product of hydrocarbons of high molecular weight in a solvent immiscible with water, treating the solution obtained with an aqueous solution of a substance having an alkaline reaction, isolating the aqueous solution, and if necessary extracting the unsaponifiable constituents with a solvent not soluble in water. I. G. Farbenind. A.-G. French Patent No. 779,843.

In many cases a viscosity determination of a wax-like compound can be most helpful in detecting mixtures or adulterations. This is especially true for products from petroleum such as ozocerite. Leo Ivanovszky. *Seifensieder-Ztg.* **62**, 475-6 (1935).

A liquid hair wash contains a water-soluble salt of a sulfonated higher aliphatic alcohol, such as sodium laurylsulfonate or sodium oleylsulfonate. Alois Gubser-Knoch. Swiss Patent No. 172,509.

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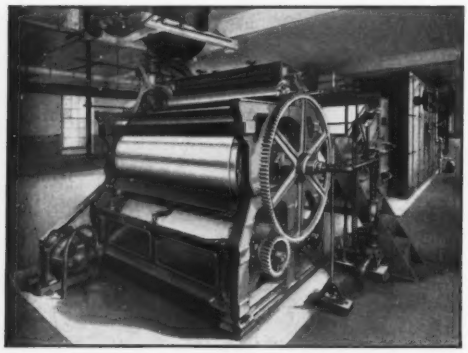

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TRADE REVIEW

RESTORING RANCID OILS

Fats which had become rancid were treated with 1 gram of semicarbazide hydrochloride and 0.4 gram of sodium stearate for each 100 grams of fat for 10 hours at 50° C. They were then filtered and rancidity tests made on the filtered fat. The latter showed no Täufel-Thaler or Kreis reactions. The reagent used can be recovered from the precipitate by boiling with acid. Its toxicity is unimportant because it was not detected in the filtered fat. Rancid fats can be restored in the same manner by the use of hydrazine sulfate or hydroxylamine hydrochloride. However, these are not as suitable because of their toxicity and the color which they impart to the oil.

Rancidity in oils can be prevented by the use of camphor. Olive, peanut, and rape oils to which 0.2 per cent of synthetic camphor was added showed no Täufel-Thaler reaction after one year, while control samples kept under the same conditions but without the addition of camphor were strongly rancid. The camphor can be removed from the oil by passing steam through the oil or by washing with 90 per cent alcohol. K. Stephan. *Chem.-Ztg.* **59,** 416-7 (1935).

—— ♦ ——

In the extraction of cottonseed oil with alcohol at higher temperatures, the ratio of extracted oil to total extract increases with decreasing alcohol concentration. Extraction should be carried out at about 78° C. with an alcohol concentration of 85 per cent by weight. The extracted oil, in the lower layer, is much lighter in color and far superior in free fatty acid content to the benzine- or gasoline-extracted oil. M. Sato, T. Inaba and K. Kitagawa. *J. Soc. Chem. Ind., Japan* **38,** Suppl. binding 50 (1935).

—— ♦ ——

A microchemical determination of the Huebl iodine number which saves 80 to 90 per cent in reagents is carried out as follows: Dissolve 0.1 gram of fat or 0.03 to 0.05 gram of oil in 2 cc. of chloroform in a 30 to 50 cc. glass-stoppered flask or bottle, add 3 cc. of Huebl's iodine solution. If it decolorizes the solution, add 1 or 2 cc. more. Stir, let stand for 3 or 4 hours in the dark, add 2 cc. of 10 per cent potassium iodide solution and 10 cc. of water and titrate with 0.1 *N* sodium thiosulfate solution, using a microburet graduated to 0.01 cc. M. Babkin. *Chimie & Ind.* **31,** 639-40.

—— ♦ ——

It can be shown by means of the salicylaldehyde reaction that ketone formation takes place upon heating fatty acids. Caprylic and lauric acids as well as many coconut fatty acids containing lauric acid undergo ketone formation more readily than palmitic, stearic and oleic acids. This behavior is parallel to that in the case of the Dakin decomposition as well as the case of ketone formation under the influence of microorganisms. The difference in the ease with which different fatty acids undergo ketone formation is probably suitable for their analytical recognition. K. Taufel, H. Thaler and M. Martinez. *Margarine Ind.* **26,** 37-9.

COLORIMETRIC RANCIDITY DETERMINATION

The Kreis test with phoroglucinol for rancidity in fats has been in common use for some time and is still used more or less. The substance present in rancid fats giving rise to the red color is epihydrinaldehyde. The sensitivity is of the order of 10 mg. of aldehyde in 100 cc. of oil. One of the main disadvantages in the use of this reaction is that a quantitative interpretation is difficult to obtain and often inaccurate. It is hard to avoid the formation of emulsions. The following procedure has been found to be satisfactory and requires only a small amount of oil.

Dissolve 0.5 to 1 gram of oil in a sufficient volume of a 1 per cent solution of phoroglucinol in acetone to give a 10 per cent solution of fat. Add a number of drops of concentrated sulfuric acid equal to the number of cc. of phoroglucinol solution added and place the mixture in a cold water bath for 15 minutes at 10° C. Determine the intensity of the red color which results by measuring it in the Lovibond tintometer. Magnus Pyke. *Analyst* **60,** 515-9 (1935).

—— ♦ ——

Errors are involved in determining the specific gravity of a semi-solid fat at an elevated temperature where it is entirely liquid, and then calculating by means of a correction to a lower temperature. The correction depends on the nature and proportion of the stearine present. Values for a few corrections are: Pilchard oil 0.00090, palm oil 0.00140, and crude sperm oil 0.00187. Specific gravity for a normal palm oil at 32.5°C./15.5°C. varied as follows according to the condition of the oil:

Condition of oil	Sp. gr.
Liquid	0.9006
Some stearine present	0.9025
Semi-solid	0.9050
Solid	0.9084

E. R. Bolton and K. A. Williams. *Analyst* **60,** 158-9 (1935).

—— ♦ ——

Peanut oil on heating with 1 per cent of aluminum chloride by weight decomposes to give 25 per cent by volume of light oil which is water-white and free from unstable, unsaturated compounds. The residue can be cracked again to yield 20 per cent more of light oil. K. Ping. *J. Chinese Chem. Soc.* **3,** 95-102 (1935).

—— ♦ ——

Since a previous study showed that Diesel engines of 5-20 hp. could run on peanut oil, further tests with peanut, palm and linseed oils were made. Various tables and diagrams are given showing comparisons with gas oil. The results were encouraging. M. Gautier. *Rev. combustibles liquides* **13,** 129-36 (1935).

—— ♦ ——

Washing and emulsifying agents are prepared by treating unsaponified waxes at 50-60° C. with ethionic acid or carbyl sulfate. When ethionic acid is used, the products are believed to be mixtures of the sulfoethyl esters of the wax acids with sulfuric esters of the wax alcohols. I. G. Farbenind. A.-G. German Patent No. 604,255.

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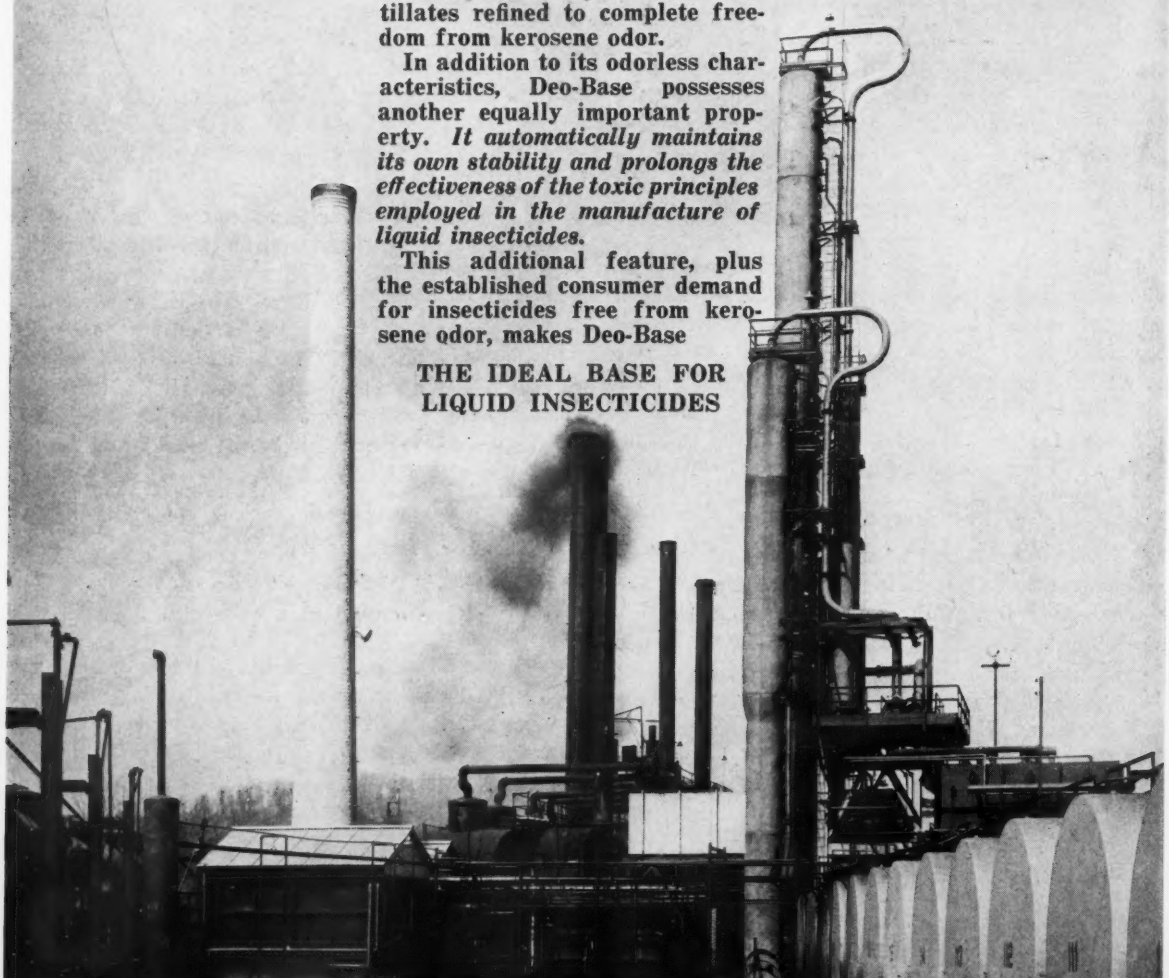

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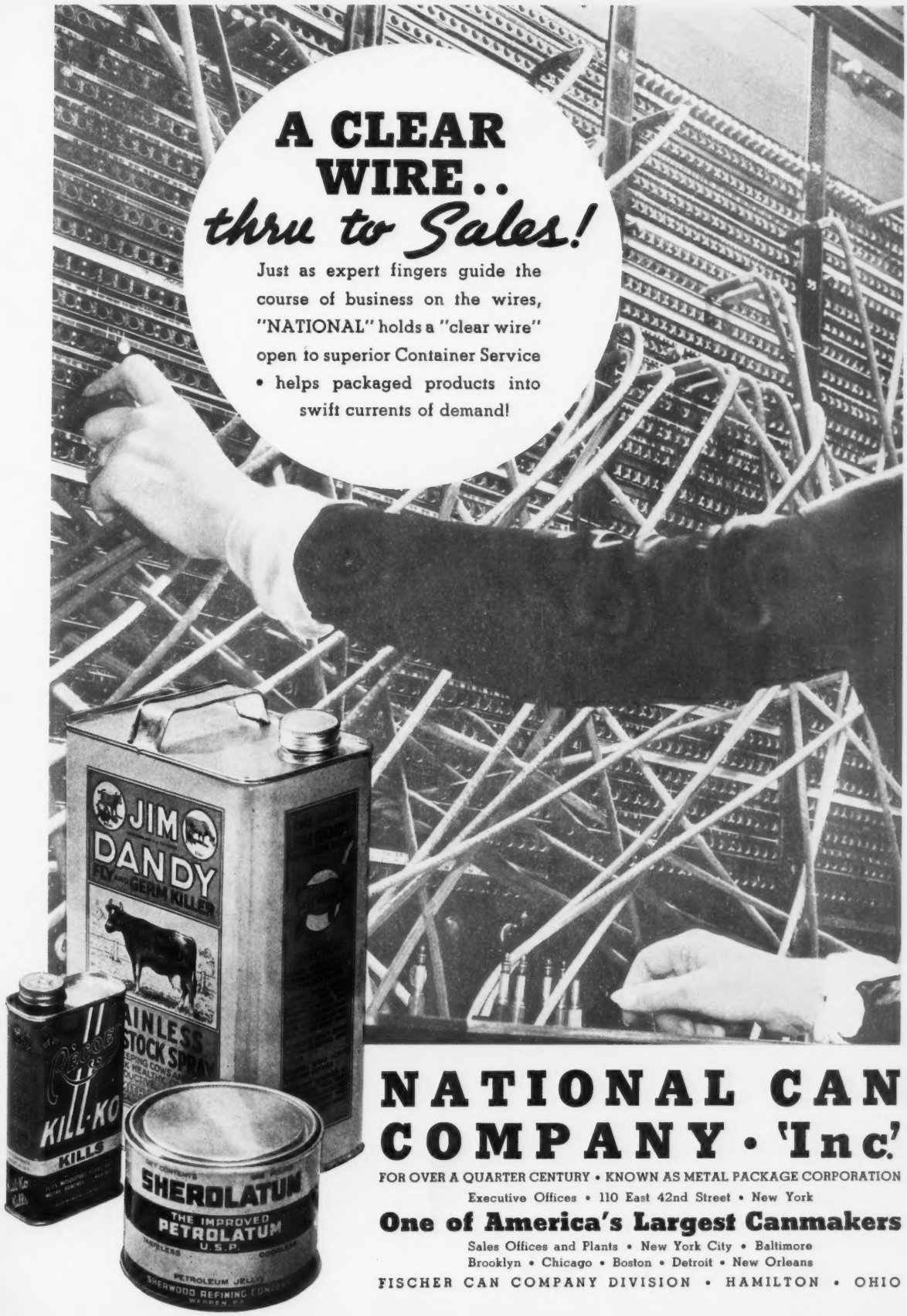
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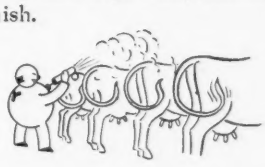

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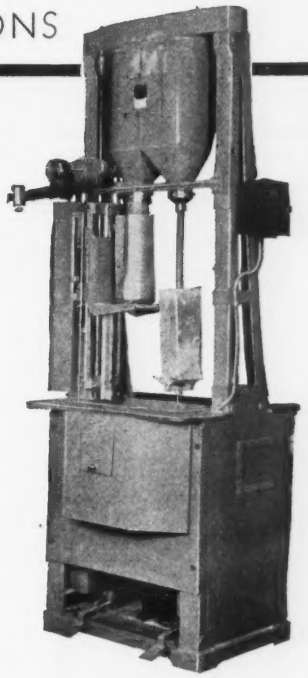

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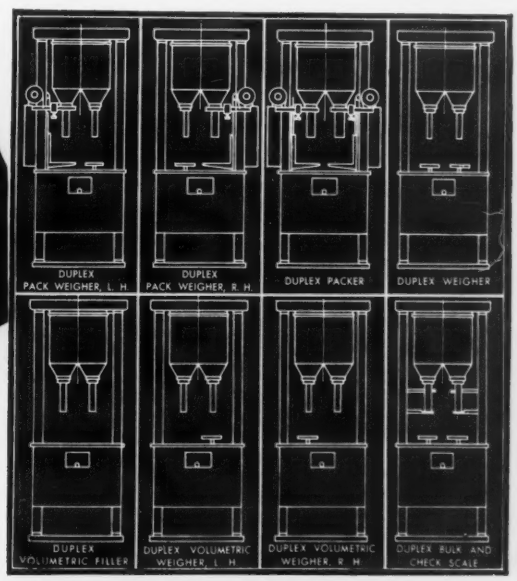
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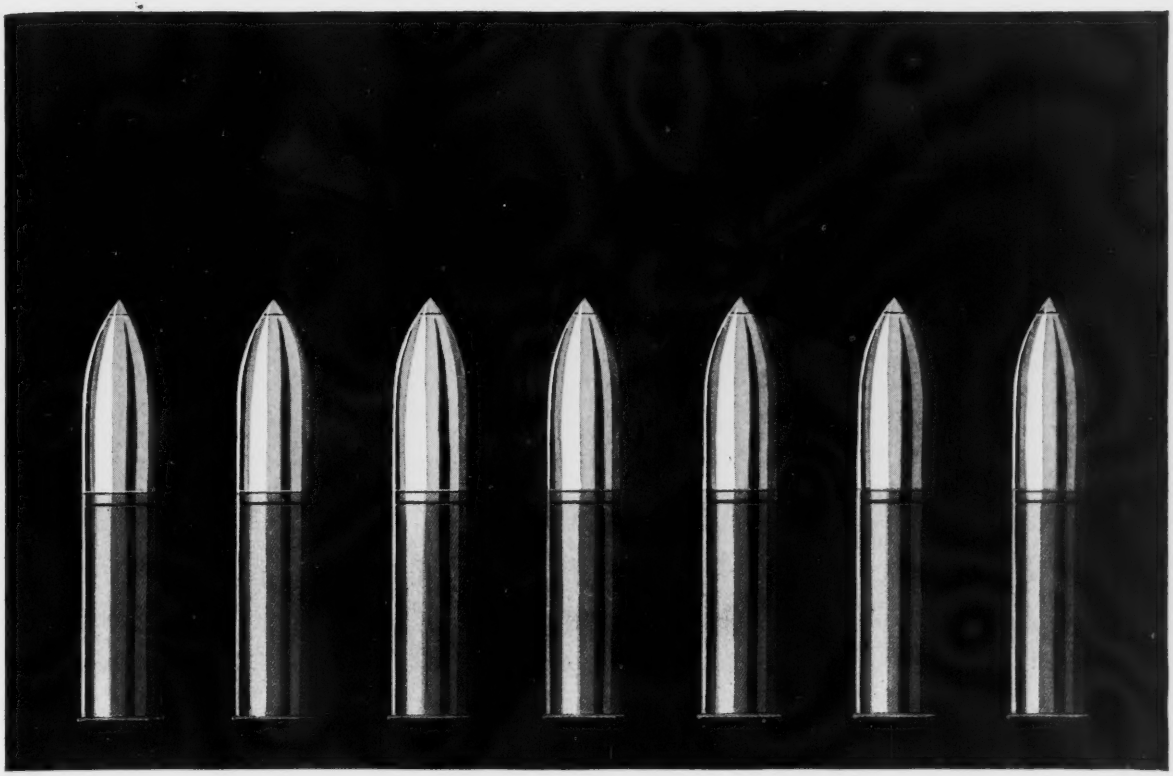

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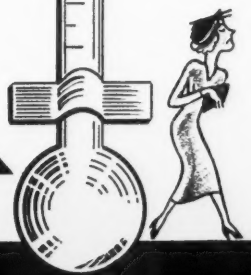

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DISINFECTANTS

You know they are right . . . full strength . . . properly manufactured . . . every lot tested and certified by Skinner & Sherman, Boston, leading bacteriological laboratory . . . here is a typical certificate of analysis . . .

GERMICIDAL TEST

F. D. A. (Food & Drug Administration) Method

Organism—B. typhosus (Hopkins).

Age of culture—24 hours at 37 Degrees C.

Medium—Standard beef extract broth (pH 6.8).

Peptone—Armours Special.

Organic matter—none.

Temperature of medication—20 degrees C.

Dose—0.5 cc. of unfiltered culture to 5 cc. of diluted disinfectant.

Subcultures—one 4 mm. loopful to 10 cc. of broth.

The subcultures were incubated for 48 hours at 37 degrees C. with the following results:

Sample	Dilution	Minutes of Exposure 5	10	15
No. 3797	1:1700	+	—	—
Tank 21	1:1800	+	+	—
2/18/35	1:2000	+	+	—
	1:2200	+	+	+
Phenol	1:80	+	—	—
	1:90	+	+	—

$\therefore$ Phenol Coefficient $= \frac{1700}{80} = 21.0$

Every Baird's DISINFECTANT is tested, certified and backed by over a quarter-century of manufacturing experience.

For the Jobbing Trade Only

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SANITARY PRODUCTS

A Section of SOAP

Official Publication, Nat'l. Assn. of Insecticide & Disinfectant Manufacturers

The Editorial View

AN old-fashioned dog fight in the market for pyrethrum products, which started a month ago, following the announcement of sharply lower prices from Japan and a crop forty-five per cent greater than 1934, played havoc with domestic prices. Although some buyers have been very distinctly pleased with the low prices which they have received, others, especially those who have had more than the average number of years experience in purchasing pyrethrum, are not so certain that the situation calls for jubilation. They see in the extremely low prices which have come into effect on some contracts a source of potential danger to the buyer,—a danger which has manifest itself in the past upon the occasion of too-low pyrethrum prices, and which may again. That danger lies in the fact that quality has been known to suffer when prices mean a loss to the supplier rather than a profit. With ninety per cent of the pyrethrum buyers of the country not in a position to check up accurately on the quality of the goods they receive, this does indeed present a genuinely serious problem which is only too-well known to old timers.

No buyer objects to purchasing cheaply, but every buyer objects to inferior quality and to some other buyer getting a still lower price than the low figure which he himself has received. Any buyer of experience prefers stable and equitable prices to those which he knows are too low for safety. With this in mind, we point to the stability of raw materials generally in the agricultural field, and wonder why the same condition cannot exist in the household insecticide field. It will if the buyers demand it, but we doubt that they will. It is our guess that the average pyrethrum user is too short-sighted to see the danger to himself in the present situation.

—♦—

IN the sale of liquid insecticides, the sprayer has always been a problem,—and still is, according to an authority who has studied this market for a number of years. Every manufacturer apparently believes that he must either give a sprayer with his insecticide, or sell one for little or nothing. Cheap inefficient sprayers have been the rule rather than the exception. And the fault lies with the insecticide manufacturer. He has forced the sprayer manufacturer to consider price first and foremost. He has not given the sprayer manufacturer a chance to produce a quality product in quantity. And inasmuch as this sprayer problem is an extremely important one in the merchandising of every insect spray, it is one which should receive some close attention and thought by the industry well in advance of the beginning of the 1936 season.

—♦—

WITH the issuance of a proposed specification for disinfectants by a large city, the need for complete specifications, recognized nationally by government and industry alike, becomes very apparent. Not only for disinfectants, but for the various types and grades of household insecticides, single standards should be set up as a guide and protection for purchasers, and for manufacturers as well. The adoption of these nationally accepted standards by individual buyers would then become a simple matter. Such standards would go a long way in eliminating fakery in the sale of these and other sanitary products, would remove uncertainty for purchasers, and would be a material help to the legitimate manufacturer.

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NATIONAL ASSOCIATION OF INSECTICIDE & DISINFECTANT MANUFACTURERS

John H. Wright, Secretary

CHRYSLER BUILDING **NEW YORK**

Notes of the Trade

James Good, Inc., Philadelphia, manufacturing chemists, have recently opened offices at 303 Fourth Ave., New York City, and 1613 Harvard St., N. W., Washington, D. C.

G. W. Amerson, general manager of the Maywood Pest Exterminators, Maywood, Ill., was recently appointed a member of the Board of Health of that town. He is now handling all pest and vermin complaints coming to the health authorities.

Walter S. McCloud, president of W. B. McCloud & Co., Chicago, exterminators and manufacturers of exterminating materials, was the author of an article in a recent issue of "The Journal of Real Estate Management" on household insect infestations and their control under the title of "Creeping Up on Us."

The Al Paul Lefton Company, Philadelphia, has been appointed to handle the advertising account of West Disinfecting Company, Long Island City, N. Y.

Lehn & Fink, Inc., Bloomfield, N. J., has issued a new booklet under the title "Lysol vs. Germs", giving information about germicides in general and the efficacy and uses of "Lysol" in particular.

Uncle Sam Chemical Co., New York, sanitary supplies, has moved recently from 329 East 29th St. to 359 Cherry St.

Douglas-Geiger Co., sanitary products manufacturer and exterminator, formerly at 519 Main St., Cincinnati, has moved to 3510 West 8th St.

A fire at the Hoboken, N. J., plant of Windsor Wax Co., Sept. 3, caused a limited amount of damage early this month. It did not interfere seriously with production, however, which was resumed a few days later.

J. A. Tumbler Laboratories, Baltimore, has just put on the market a new auto wax under the name "Rainproof".

P. H. Maheu of the Mysterious Chemical Co., Ltd., Montreal, accompanied by Mrs. Maheu, spent a week in New York late in August chiefly in visiting the insecticide and associated trades.

Thoro Exterminating Co., formerly at 109 West 116th St., New York, has moved to 1 East 125th St.

Klein Exterminating Co., Milwaukee, has moved into new and larger quarters at 1141 North Third St.

Disinfectants have innumerable uses on the farm as well as in the factory or institution. A few practical points to help the jobber sell more by knowing how, when, and where to use

COAL-TAR DISINFECTANTS

By EUGENE KOHN
Chemical Compounding Corp.

TOO large a proportion of jobbers and their salesmen handling disinfectants do not know enough about their practical application to sell them intelligently. This lack of knowledge frequently interferes with sales. It effectively blocks off any new uses among old customers as far as suggestions from the disinfectant salesman are concerned. A new use may be staring a salesman directly in the face and if he does not recognize it, how can he hope to suggest to the customer that he buy an additional quantity of disinfectant for the purpose? It will only be by increasing the knowledge of the men actually contacting the consumers that wider use of disinfectants for purposes with which the consumer is not familiar, can be secured.

Anticipating criticism in advance from some of the scientific minds of the disinfectant industry for the elementary manner in which I have presented the facts in this case, I want to answer that anticipated criticism. It must be remembered that the men who sell disinfectants, also sell a myriad of other items in the sanitary specialty line and janitor supplies. Disinfectant is just one more item with them, and they can and will only hold and pass on the simplest of elementary facts. If we complicate the facts to them by becoming too technical, too exact, and too detailed, they will forget the whole thing. The most elementary facts, widely disseminated, are sufficient to help educate these salesmen so that they will be better equipped to sell more disinfectant.

In order to present the facts in as understandable a manner as possible, I have arranged an imaginary conversation between Smith, a jobber's disinfectant salesman; Burr, a factory superintendent; Dalton, a purchasing agent, and others. The points brought out are ones which I believe could be used very effectively by salesmen for jobbers in pushing the sale of their disinfectants. The conversation begins:

Smith: You ought to be needing a drum of coal tar disinfectant.

Burr: No, I don't think so, we still have some in the last drum and I don't feel that we are getting any good out of it. Besides, several salesmen have called on me this week and quoted much lower prices than yours.

Smith: One thing at a time, if you don't mind. Would you care to walk through the factory with me?

Burr: What's the idea?

Smith: Well, I would like to discuss the first thing

you mentioned, namely, what good the disinfectant is in the building.

Burr: Here comes Jim, our head porter. Here, Jim, meet Mr. Smith. He wants to tell us how to use disinfectant.

Smith: Glad to shake hands with you, Jim. I don't want to teach you anything, only to talk to you and Mr. Burr about what disinfectant is good for in your factory.

(They walk into the factory and Mr. Smith points to the door of the "Men's Room.")

Smith: Do you use disinfectant in here, Jim?

Jim: Why yes, every morning one of the porters pours a cupful into each bowl.

Smith: That is good as far as it goes, Jim, but if you would pour it in at night instead of in the morning, after there is no one in the building to use this room, you would have the benefit of the action of the disinfectant for 12 or 15 hours instead of just a few minutes.

Burr: What action do you mean?

Smith: The cleaning and disinfectant action, which, like most things is most effective the longer the time allowed for its action. Another very important point that must be taken care of is that thorough cleaning with the aid of a long-handled brush is absolutely essential if you want to maintain clean conditions in your toilets. At no time should a scum or coating be allowed to form in the receptacles. I am glad to know that you have provided modern deodorizing equipment and installed soap and towel dispensers, but let us stick to the story of disinfectant for the present. I hardly need to ask you, Jim, whether you use disinfectant in the scrubbing water when you mop down the floors in this room.

Jim: Yes, we do. (As they emerge into the Machine Shop they are joined by Mr. Todd, the Machine Shop foreman.)

Smith: What kind of lubrication are you using in your cutting operations, Mr. Todd?

Todd: We are using a water emulsion cutting oil.

Smith: Have you ever tried adding a small percentage of disinfectant to your cutting oil mixture. You may find a reduced percentage of infections resulting from small cuts and abrasions of the skin among the operators of the machines.

Todd: That seems to be a very good idea because we have had a lot of reports of such trouble,—infected cuts and boils.

Smith: This is but one example of many uses that can be found for coal tar disinfectant which would not be thought of in the ordinary course even if when disinfectant is in stock in the factory, or in the home, for that matter. (The group passes into another room.)

Burr: This is the lunch room for the men. Here we serve them with hot coffee to add to the lunch which they bring.

Smith: (He lifts the lid of the garbage can in the corner.) Jim, may I suggest that these cans be cleaned with disinfectant solution oftener, and that a little of the disinfectant be left in the bottom of the garbage can?

Jim: Won't that corrode the can?

Smith: No. Properly made coal tar disinfectant is neither alkaline nor acid and will not cause corrosion or any chemical deterioration on either metal or porcelain surfaces. This is one test that we suggest for identifying properly made disinfectant.

Burr: While we are on the subject, why can't we use some coal tar disinfectant on my farm?

Smith: By all means. There are innumerable uses for it around animal quarters. For example, after cleaning up the stables, kennels and pens, mop and spray thoroughly with a solution of disinfectant and scrub all flooring with the same solution. You will find this useful not only to keep animal quarters clean and free from foul odors, but also to reduce the breeding of flies which breed especially in the dirt and manure about animal quarters. You can also make a very effective coat wash or dip for animals by making up a solution of disinfectant and repeating the treatment at regular intervals. I have here a copy of the Department of Agriculture Bulletin No. 989, of which any one of you can get copies by sending 5 cents to the U. S. Printing Office at Washington, which describes in detail the method of using coal tar dip against fleas and lice on animals. (By this time the group had been joined by Mr. Dalton, the purchasing agent, who listened attentively.)

Dalton: Why is there such a great variation in the prices quoted us on coal tar disinfectant by various salesmen?

Smith: I am glad you asked that because it brings up a second question of Mr. Burr's. Coal tar disinfectants are priced in proportion to their phenol coefficient. As you probably all know, this is the bacteriological method of comparing the killing power of the disinfectant against typhoid bacilli in comparison with the killing power of standard solutions of phenol (the chemical name for carbolic acid). Therefore, a disinfectant with a phenol coefficient of six is six times as effective as carbolic acid, and under the conditions of the test would be twice as effective as one which has a phenol coefficient of three. It could therefore be used in solutions half as strong as the disinfectant of coefficient 3 with equal effectiveness, and if you could buy it, which you can for less than twice as much as the disinfectant of cofficient 3, you would be making a good buy.

However, there are several other points to be considered. First of all, will your porters use it in the proper solution to do the work so that you get the benefit of the higher germicidal strength? If they do not, you will find that you will use just as much of the coefficient 6 disinfectant as you did of the coefficient 3 disinfectant and yet will have spent more for it. Of course, even so you would be using solutions which are stronger germ killers and which should give you greater security. But the proper instructions have to be given to fit the disinfectant you are using. A second point I want to bring up is,—are you using your disinfectant only as a germ killer? Many of the uses I have discussed with you depend upon the cleaning and deodorizing value of the

(*Turn to Page* 113)

Shall one or more sizes of a household product be marketed? Bringing the user back to the retailer for a new supply has advantages, but every purchase entails the possible switch to another product. The manufacturer must decide, the author says.

NEW PRODUCTS

A Few Hints on Their Development

PART FOUR

By RALPH H. AUCH
Chief Chemist, Zanol Products Co.

DIRECTIONS for use are frequently carelessly prepared and even the verbiage is often poor. The greatest and commonest fault appears to be to lead off in bold face, large size type with the word "Directions" and then launch into a lot of "hooey" that is promotional copy. In fact, it is not uncommon to find a testimonial or two under directions.

Use of the second person is also to be decried. Hasn't the modern merchandising of specialties got past this? Yet a new dollar-a-throw shampoo used "you" and "your" freely. The label on the bottom of a $1.25 jar of face cream states "4 Purpose Face Cream was created to flush pores of Whiteheads, Blackheads; resupplies skin with natural oil it loses daily; banishing Wrinkles and Dryness. Hence must be applied twice daily to keep the skin soft and smooth." The misplaced caps and punctuation marks are copied verbatim. The label on a tissue stimulant states: "This oil sinks freely into the pores, stimulating and nourishing the tissues beneath." Both are rather slovenly English.

Cautions are admittedly bad sales-wise, but should be indulged in if necessary. A few examples follow. A time limit on leaving on of a depilatory or a caution about use before or after the use of deodorants is the part of wisdom. Otherwise, a woman may throw herself across her bed with arms overhead awaiting the dehairing action. If she drops off to sleep, a law-suit will be the ultimate outcome. Likewise, cautions about the use of cuticle remover in the manicure are in order. Infected fingers are also grounds for action.

Stain remover should carry a caution as to time to leave in contact with the fabric as well as stress the importance of a thorough rinsing out. If this caution is not advanced and the time recommendation not made a tendering or a bleaching of the fabric or both may result. Directions are sometimes wholly omitted. It would appear that directions are in order even in such homely widely used products as shaving cream and tooth paste.

Uses and Promotional Copy

THE questionnaires (see July issue of SOAP) in every case can be made to yield new, different and unusual uses as well as unique appealing copy slants. An invitation to suggest new uses and a space for remarks and criticism on the questionnaire form is all that is required. If a product meets the approval of the testers, the adjectives, the superlatives and the clever expressions used to voice their enthusiasm will exceed those the av-

erage advertising copy writer or sales promotion man can conceive in a lifetime.

Likewise, the unusual uses to which a specialty will be put by testers will exceed one's fondest hopes or gravest fears. In fact, the one charged with writing the sales promotion copy must be on his guard else he will find himself running wild as did the patent medicine man with his shot-gun prescription.

Silver cream has been used to clean everything from piano keys to painted woodwork. A laundry specialty containing bluing has been used to wash everything from the garage floor to the family pets and grandma's white hair. Dishwashing beads have found application from glass cleaning through removal of tea stains to taking grease off of the gas range and the ring out of the bath tub. Hand lotion testers have been found to use it as a powder base, for sunburn, to relieve dry skin and remove freckles as well as the commonplace purpose for which it was prepared.

One or More Sizes?

THE number of sizes to be offered should come in for serious consideration. Whether one, two or three sizes should be offered may be considered in somewhat the same manner indicated for choosing the type of container. The advantage and disadvantages of each number of sizes may be set down for study. Every product presents an individual problem but a few generalities can be drawn nevertheless.

One small size causes the user to be without the product quite frequently because of forgetting to purchase a new supply. Witness the man becoming very economical as the last of his shaving cream is being squeezed from the tube or the housewife waxing frugal as she observes the bottom of her kitchen cleanser can being reached.

Each time that the new purchase is made it affords the opportunity for the voice of the salesperson or the urge of competing advertising or even the natural curiosity of the purchaser to switch to the trying of another brand. On the other hand, the more frequent the calls upon a dealer for any specialty, the more conscious it makes him of a seemingly large demand.

Of course, many products such as liquid floor wax, shaving cream, lotion, tooth paste, or laundry flakes have an upper price limit more or less set for them by custom. Or, is it because their manufacturers lack the courage to launch their specialties at a price higher than the usually accepted one? Yet, a soapless but lathering shampoo liquid in a 6-ounce size recently came out at $1.00, sponsored by one of the largest soap manufacturers.

And this writer sat in when a package of specialty laundry flakes was priced at 25c for a 12½-ounce package, 39c for a 28-ounce package with the market flooded with 80-ounce packages at a fraction of this figure. The same was done with a laundry starch specialty and both were sales successes. At the same time, he wouldn't, for instance, relish being party to launching a new 25 or 35 cent toilet soap or a 5-ounce package of dish washing beads for 15c.

Inquiry developed the fact that several manufacturers refrain from putting a retail selling price on their package because of indiscriminate price cutting. By reason of this cutting their price does not mean anything and the different manners in which they refer to the reasonable price without naming it on the printed page or the carton are really clever.

Affix or Omit Price?

QUESTIONS that must be answered before the decision to affix or omit the price follow: Are purchasers more likely or less likely to buy an item at 39c if a 50c price appears on the package for example? Or, assuming a specialty carrying a 35c price printed upon it offered at 33c alongside of one of same size carrying an equally good brand name at a 50c price offered at 39c. Will the prospect buy the latter in the belief that a better bargain is being obtained?

Whether the package is finally completed with or without the price appearing on it, why stick to even prices? There have been entirely too many even prices affixed when odd prices have proven their sales appeal beyond question in all kinds of retail outlets. Then, too, with 24 states already having retail sales taxes in effect, of from ½ to 3 per cent and other states flirting with this same method of adding to their exchequers, why not take sales taxes into account seriously? Price a normally 35c item at 33c, a 50c item at 48c and a $1.00 item at 97c or 95c, for example, so that the tax won't throw the total outlay over the even figure.

If the writer is accused of evading the question of pricing and whether or not to affix it, he openly pleads guilty. Each specialty presents an individual problem so only some of the pro and the con with a bit of food for mental exercise has been advanced.

Trade and Jobbing Discount

DISCOUNTS, both trade and jobbing, can be set only after weighing every consideration and with the aspiration to make everybody happy. Set too high, is fine during the introductory period as it should normally encourage dealer and jobber cooperation. Initially when the manufacturer would like to see the price cut so his specialty is competitive, the outlets maintain the retail price and pocket the extra profits. When a specialty has gained some consumer acceptance and the manufacturer would like to see the retail price maintained, the retail outlets cut and make a veritable football of it. Larger discounts, deeper cuts. That extra discount finally comes to be a permanent handicap, for just try to reduce it.

Discounts set too low is the best known way to cause apathy on the part of jobber and retailer alike. And specialty manufacturers lately generally acknowledge the important place of the dealer in all their merchandising efforts. Witness that most all current contests offer

prizes to the dealers that sell to the winning consumers in amounts equalling the consumer winner's prize.

Size of Shipping Container

THE size of shipping container is frequently overlooked or given but scant attention. Competition may pack 50 or 100 and one-half or one gross, as with many toilet soaps, so the newcomer forthwith adopts the same size. He overlooks the fact that competition may be firmly entrenched and that retail outlets enjoy rapid turnover on their specialty.

How much better then until he, too, enjoys rapid turnover for him to pack in smaller units to insure fresher, less handled, more inviting packages being handed to the consuming public. And the jobber will appreciate smaller units, too. It is not a sign of weakness but of cooperatoin. One manufacturer packs his specialty for dime stores in one-half gross containers, the 35c size in two-dozen containers and $1.00 size in half-dozens. These are not chance packings but were arrived at by a thorough study of sales.

Here again only one example will be indulged. One of the largest grocery chains carries about 825 to 900 items. Of this number, it is necessary in their warehouses for distribution to their stores, to split cases of some thirty odd items, mostly specialties. Splitting cases is not confined to canary seed and bird gravel but includes some slower moving cereals, bluing, toilet and laundry soaps, shoe polish, household cleansers, furniture polish and fly spray. Distributing warehouses of drug chains are veritable repackaging depots. If this condition exists in a grocery and drug chain what of the jobber in his shipments to the small humble slow turnover independents?

Generally, a larger size costs relatively but little more to produce than the smaller size. Yet an inducement, either in the form of a price concession or an extra volume or weight must be offered to the consumer to stimulate sale of the larger of the two or the largest of the three sizes. These inducements are bound to reduce the potential available volume, especially of those specialties with only a relatively thin market anyway. If it is actually reflected in reduced annual sales volume, then it follows that there must be an attendant reduction in the amount of money available for advertising and sales promotion and expense.

To those used to spending two, three, five or even ten per cent of gross in sales promotion, this doubtless appears to be carrying reasoning to the *n*th degree. However, for the benefit of the uninitiated, those who confine their sales effort to staples, it is not uncommon to spend forty or even fifty per cent of gross in sales expense and promotion.

All this appears obvious, yet it is not widely recognized. To cite only one example—a manufacturer of a specialty offers it in three sizes. His annual volume approaches one million dollars and his sales promotion costs are around $410,000. The sales of the largest size ran $28,800 and, worse than that, any purchaser of the largest size should have it to pass on to her grandchildren because the size is so large and because it is so infrequently and sparingly used. And this largest size continues to warm the dealers' shelves.

Bid For 10c Store Business?

OBVIOUSLY a specialty carrying a low retail price will make an active bid for the big volume, no credit loss, no delivery cost, low selling expense, sweet five-and-ten business. Specialties in the higher price brackets have quite a few questions that have to be satisfactorily answered before decision can be made.

Is the package one that can be reproduced in miniature size at a reasonable cost? This trade is insistent that the ten-cent size be a replica or exact copy of the regular size and it is to the advantage of the manufacturer to make it so. It may in time replace sampling in whole or in part at a tremendous saving.

Is the package one that can be filled, closed, labeled, cartoned and packed economically on automatic or semi-automatic machinery? Only by getting the package and packing cost down to rock bottom can the specialty be produced at a profit when $9.00 per gross represents the syndicate top and $7.50 per gross or less it's average buying figure.

To affix or omit the retail price on the package? Each specialty must decide this question for itself, the author states.

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Will sales of the regular sizes suffer on account of the dime size? Almost without exception they will not suffer one iota. In fact, it is not uncommon for their sales to be materially increased. The dime size reaches consumers in the lower strata and of the colored race, the hardest classes to reach by any known form of sales promotion.

Costs

COSTS to the French perfumer selling his wares from $2 to $25 are one thing. To the manufacturer making specialties selling at popular prices, they are another. Innumerable instances come to mind where new specialties have no more than made their debut than evidence of cost cutting is apparent to the observer. The reason is not far to seek. Costs looked in line all right but once in production unanticipated expenses and costs crept in that threw the total out of balance. Something has to be done about it.

The varnished or lacquered carton is replaced with a plain one and if the decorations are in pastel shades they smudge and soil terribly. The plastic closure or the shiny brass cap is replaced with a double shell metal or plain aluminum or lithographed tin one and all have been known to corrode under certain conditions on certain products. The embossed metal label gives way to a printed metallic paper one. The hand blown bottle retires in favor of the machine blown one. The three or four color job is bowed out by a two color one. The white patent coated news back carton board replaces the white clay-coated Manila back one. All in the name of economy.

How much better had costs been gotten in line in the first place. However, costs being cut at the expense of the appearance of the package is far better than shaving them at the expense of the contents. A little less of a little cheaper odor, a little higher filler content, a lower titre stearic acid, talc that belongs under road rollers instead of one that has a rightful place on the physiognomy, etc., etc., cannot help but undermine the dearly bought good-will.

Retail Price

THERE is always the question of what to name as the retail price and having fixed the proper retail, whether or not to affix the price on the package. Before everybody got so busy making a living that they have no time left for making some money, there may have been a few people to whom the price meant nothing. It would appear that at this date and for some time into the future, the retail price of any new article is going to be a big factor in determining its success or failure. This is true even though the public generally does not choose its movies by the numerals over the cashier's window or order its luncheons from the right hand column of the menu.

Priced too low, the public questions quality and is doubly critical of the product, else why do miniature sizes sell better than full-size packages in the dime stores. Priced too high, the consuming public has competitive products intelligently priced on which it can shower its patronage. And superlatives on the tongues of sales-people, on the printed page and on the radio won't sell over-priced specialties. For haven't the manufacturers of popular priced merchandise used all the superlatives anyway, whether the merchandise be autos, toilet soap or fly spray.

Separate Company for the Specialty?

NOW that the product itself is ready to be put into production and the merchandising is ready to be launched, the question may arise whether or not a separate company should be organized to exploit it. In the case of the manufacturer making a large number of products who adds a new one to round out his line, no special adieu is made of it. So, too, if a tooth paste manufacturer makes a mouth wash, a soap manufacturer offers a shaving cream or a shampoo, a deodorant merchandiser exploits a depilatory. In fact, if the manufacturer's new product fits in with those already established, he exercises good judgment and avails himself of the prestige he enjoys when he offers it under his own corporate name and trade-mark.

On the other hand, the manufacturer with an established specialty or two that develops a new product of a more or less foreign nature and whose trade-mark does not fit the new one, pursues the right course when he adopts a new trade name. Under certain circumstances, he is justified in organizing, if not obliged to organize a new company to exploit this new specialty. This writer once wrote a veritable monograph on this phase of new products development alone so must cease and desist after merely raising the question so the possibility or advisability will not be overlooked.

Conclusion

SOMEONE has said in substance "There is a stream of fortunes pouring out in ever increasing volume to the creators of things new. These things new may be little or great ones. They involve revolutionary changes or common-sense logical developments and, again, they may spring from ideas sound or unsound." However, this is no plea, no urge to undertake the development and exploitation of specialties. If a specialty is in process of development or if the urge to develop one exists, what has gone before is something of the modus operandi.

This discussion was started with the premise that losses of both money and prestige occur and products having all the ear-marks of a successful specialty languish and die because someone errs someplace along the route from idea to finished marketable product.

Errors will continue to be made, for certainly this discussion is no cure-all. It is hoped, however, that some of those in the throes of launching a new specialty will find what has been advanced helpful and may even use

(*Turn to Page* 115)

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CRACCA—a Source of Insecticides

A Preliminary Study of Domestic Species of Devil's Shoestring as Sources of Insecticidal Materials

By HOWARD A. JONES, F. L. CAMPBELL, and W. N. SULLIVAN[1]

Bureau of Entomology and Plant Quarantine, U. S. Department of Agriculture

IN HIS recent review of our knowledge of the devil's shoestring (*Cracca virginiana L.*) Roark (9) attributed the discovery of its insecticidal properties to Little (8), but he also pointed out that the Insecticide Division[2], Bureau of Chemistry and Soils, United States Department of Agriculture, had collected specimens of this weed in North Carolina and Virginia in 1930. Little's work, however, stimulated the Insecticide Division to make further collections of this and other domestic species of *Cracca* and to study the chemical and toxicological properties of extracts of the roots and other parts of the plants.

Samples collected in 1930 and 1931 were shown, by Drake and Spies (4) and Spies (10), of the Insecticide Division, to be toxic to goldfish. In the fall of 1932 the Division of Insect Physiology and Toxicology[3], Bureau of Entomology, United States Department of Agriculture, undertook the insecticidal testing of extracts of *Cracca* prepared by the Insecticide Division. At first, tests of acetone extracts were made by the junior authors against culicine mosquito larvae. Of 11 extracts of roots of *C. virginiana* prepared by Dr. E. P. Clark of the Insecticide Division, one from Texas (I. D. No. 1087)[4] was effective and the others, from North Carolina, including I. D. Nos. 1090, 1098, and 1099, were relatively ineffective.

In January, 1933 the junior authors tested against house flies a kerosene solution of ether extractives of I. D. No. 1087 from Clark. Again this sample appeared promising. At the same time Clark (3) was studying the constituents of extracts of this sample and succeeded in isolating rotenone and related compounds. At about the same time the junior authors tested an acetone extract of I. D. No. 829-60 from Texas against mosquito larvae for Spies and found it to be more effective than the acetone extract of I. D. No. 1087. Another sample from South Carolina that was tested for Spies was ineffective.

In June 1933 the senior author of this paper made the first quantitative determination of rotenone in *Cracca*, using an acetone extract of I. D. No. 829-60. In September 1933 he started a systematic survey of the chemical properties of domestic species of *Cracca* in cooperation with the junior authors, who made the insecticidal tests. Use was made of some samples that had already been studied and of others that were collected in 1933 and 1934. Beginning in July 1934 the writers took part in a more extensive survey of the insecticidal value of *Cracca* initiated by the Bureau of Plant Industry with funds from the Public Works Administration. It is the purpose of this paper to bring together the results of the writers' work on domestic species of *Cracca* done prior to or independent of the cooperative project with the Division of Drug and Related Plants of the Bureau of Plant Industry.

Chemical Determinations

Acetone extracts of all samples listed in Table 1 were prepared by Soxhlet extraction of 20 g. of the air-dried, ground plant material for 7 hours. The extracts were made to a volume of 100 cc. Therefore, 1 cc. of each extract was equivalent to 200 mg. of plant material. Aliquots of these extracts were used for most of the chemical and insecticidal tests. Total acetone extractives were determined on 10 cc. aliquots which had been evaporated to dryness on a steam bath and dried 30 minutes at 105° - 110° C. (221° - 230° F.).

Modified Durham color tests were made on 1 cc. aliquots by the published procedure (7), and the depth of color was expressed in four grades as follows: 0, negative; 1, trace or faintly positive; 2, positive; and 3, strongly positive. In this work either a blue or blue-green color was considered positive and the grading was based on the depth of color. Those samples classed as negative gave no trace of blue or green color. Many of the samples giving negative tests gave deep yellow colors, and hence no doubt the blue-green color obtained with some of the positive samples was attributable to a yellow background.

Determinations of the methoxyl content of some of the extracts were made on aliquots that had been thoroughly dried and treated with two successive portions of benzene, with thorough drying after each addition to remove all traces of acetone. The results were calculated to equivalent "rotenone" content[5]. The optical rotatory power of some of the extracts was determined in a saccharimeter. Rotenone was determined quantitatively by carbon tetrachloride extraction of the few samples that had given a strongly positive Durham test. For the rotenone determination samples of 200 g. each were used for I. D. Nos. 1927, 1928, and 1929. To extract a sample of this size it was found convenient first to reflux it with about 1 liter of carbon tetrachloride on a steam bath for 24 hours. This mixture was filtered while hot, and the marc washed with about 500 cc. of hot solvent and refluxed with 1 liter of fresh solvent for an additional 24 hours. The second extract was separated by filtration, the marc washed as before, and the extracts were combined. Most of the solvent was recovered by distillation; the extract was evaporated to 50 cc. and then treated according to the published method (5). Determinations were also made on 200 g. samples of both I. D. Nos. 1927 and 1928 by Soxhlet extraction, but more complete extraction was obtained by the refluxing method, judging both by Durham tests on the marcs and by the amounts of rotenone obtained. This method of extraction is pre-

[1] The writers acknowledge the assistance of E. L. Gooden, Insecticide Division, Bureau of Entomology and Plant Quarantine, for chemical and botanical help and of S. F. Blake, Division of Botany, Bureau of Plant Industry, for identification of plants. Those who collected or furnished specimens of *Cracca* for this work are named in Table 1.

[2] Now in the Bureau of Entomology and Plant Quarantine.

[3] Now a part of the Division of Control Investigations, Bureau of Entomology and Plant Quarantine.

[4] Data on all samples referred to in the text by Insecticide Division (I.D.) number are given in Table 1.

[5] This had been done in previous work on derris and cube because the compounds of the rotenone type thus far isolated have approximately the same methoxyl content as rotenone. However, on comparison of the present methoxyl results with the results of the Durham test and of the toxicity to house flies, it would appear that the samples of *Cracca* studied contain a much smaller proportion of rotenone-like methoxyl-containing materials than do derris and cube.

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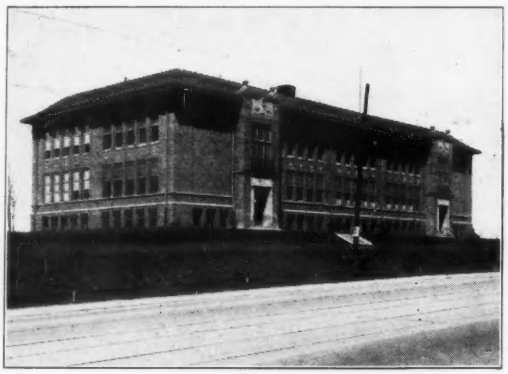

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ferred when, because of low rotenone content, very large samples must be used.

In the case of I. D. No. 1791, which had been analyzed before the adoption of the foregoing method and of which only a limited quantity was available, the determination of rotenone was made on the combined extract from four 50 g. samples made in a Soxhlet apparatus. It is possible, therefore, that this sample contained somewhat more rotenone than was actually found.

Only an acetone extract of I. D. No. 829-60 was available for this study. To determine the rotenone content, a 100 cc. aliquot was evaporated to dryness in a vacuum, the residue taken up in hot carbon tetrachloride and filtered to remove insoluble material, and the filtrate treated according to the usual procedure.

I. D. No. 1087 is the sample from which Clark (3) isolated rotenone. There was not sufficient material available at the time of this study to make a quantitative estimation of the rotenone. Clark stated, however, that he was able to separate approximately 0.25 per cent of rotenone from this sample, but mentioned that there appeared to be considerable additional rotenone present which could not be crystallized.

The results of all chemical determinations are given in Table 1.

In the cases of two samples collected locally in September 1933 (I. D. Nos. 1891 and 1892), whole plants were taken and the weights of both roots and aerial portions determined before and after air-drying. In I. D. No. 1891 the roots represented 73 per cent of the green weight of the plant and 66 per cent of the dry weight, whereas in I. D. No. 1892 the roots were 72 per cent of the green weight and 78 per cent of the dry weight of the plant. In both samples the roots lost 39 per cent of their green weight on drying.

Kerosene Extracts Against House Flies

In 1933 the writers (2) found that a kerosene extract of one sample of derris (I. D. No. 401) was effective, although rotenone could not be isolated from the ground root. It seemed possible, therefore, that kerosene extracts of *Cracca* having little or no rotenone might also be effective. Accordingly, in October 1933 tests were made of kerosene extracts of the 9 samples of *Cracca* that were then available. An extract of a sample of *Derris elliptica* root (I. D. No. 523) containing about 1 per cent of rotenone was tested at the same time. All extracts were prepared at a concentration of 24 g. of root per 100 cc. of kerosene (equivalent to 2 lbs. per gal.), by the method of extraction already described (2). The method of testing these extracts against house flies has also been described (1).

The average mortalities in 3 days for nine replications are given in Table 1. Only one extract of *Cracca*, that of *C. latidens* (I. D. No. 1791), gave a marked mortality, 42.0 per cent, whereas the comparable extract of derris killed 81.7 per cent.

During the first three replications a temporary effect of some of the extracts on the flies was noted. For example, 1 hour after treatment with the extract of *C. latidens* nearly all the flies were on the floor of the cage. Many of these flies recovered their normal activity later. Of the 8 extracts that gave a negligible mortality, some caused a marked temporary effect and others had practically no effect. Therefore, in the last six replications estimates were made of the percentage of flies on the floor of the cages 1 hour after treatment to demonstrate differences in effect of the extracts that were not shown conclusively by mean mortalities. The average percentages given in Table 1 show that 3 of the 8 ineffective extracts had a marked temporary effect. The kerosene checks had neither temporary nor permanent effect.

Methoxyl determinations were made directly on these kerosene extracts and the calculated equivalent "rotenone" contents are recorded in Table 1.

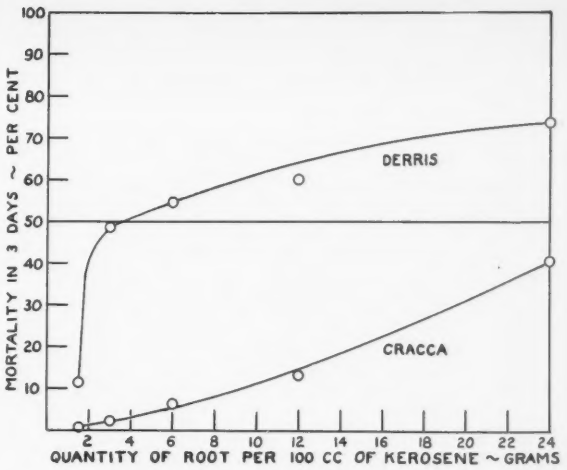

Figure 1. Relative effectiveness against house flies of kerosene extracts of Derris elliptica (I.D. No. 523) and Cracca latidens (I.D. No. 1791).

As the kerosene extract of *Cracca latidens* (I. D. No. 1791) was the only one that showed promise in comparison with the extract of *Derris elliptica* (I. D. No. 523), a thorough comparison of the relative effectiveness of extracts of these two samples was made at the following concentrations of each: 1.5, 3.0, 6.0, 12.0, and 24.0 g. of root per 100 cc. of kerosene. The relation between concentration and mean mortality in six series of tests is shown in Figure 1. The derris extract at 3.0 g. per 100 cc. (¼ lb. per gal.) was somewhat more effective than the *Cracca* extract at 24.0 g. per 100 cc. (2 lbs. per gal.); in other words, the sample of derris was more than eight times as effective as the sample of *Cracca* in producing a mortality of about 50 per cent.

Acetone Extracts Against House Flies

Because acetone should extract the toxic substances of *Cracca* more completely than kerosene does, it was considered advisable to test acetone extracts of all available samples.

Apparatus and Method.—The method of testing these extracts was a mechanical modification of that used for testing the kerosene extracts of *Cracca*. It was used by the writers (6) in previous work on acetone extracts of rotenone-bearing plants, but was not described. This so-called "turntable" method was devised to save time and labor and to obtain greater uniformity of application of the liquids to be tested. Instead of the spray gun being moved from cylinder to cylinder, the cylinders were moved on a turntable under a fixed spray gun.

The apparatus[6] is shown in Figure 2. *A* shows the equipment framed by the floor, walls, and ceiling of the constant-temperature room in which it is placed. Six glass cylinders (17 inches high and 8¾ inches outside diameter) stand around the center of a table, *B*, which can be revolved on a pivot, *D*, fixed on a smaller stationary table top below the turntable. Each cylinder is covered with a circular piece of plate glass having a ¾-inch hole bored through the center. The spray from the gun enters the cylinder through this hole, and air and a little mist escape through it. The hole is not stoppered after spraying.

The turntable is made of hard maple, in two layers glued and screwed together, with the grain in one layer running at right angles to that in the other to prevent

[6] The general arrangement was suggested by F. L. Campbell, and the details of construction were worked out by G. R. Elwell, Bureau of Lighthouses, U. S. Department of Commerce.

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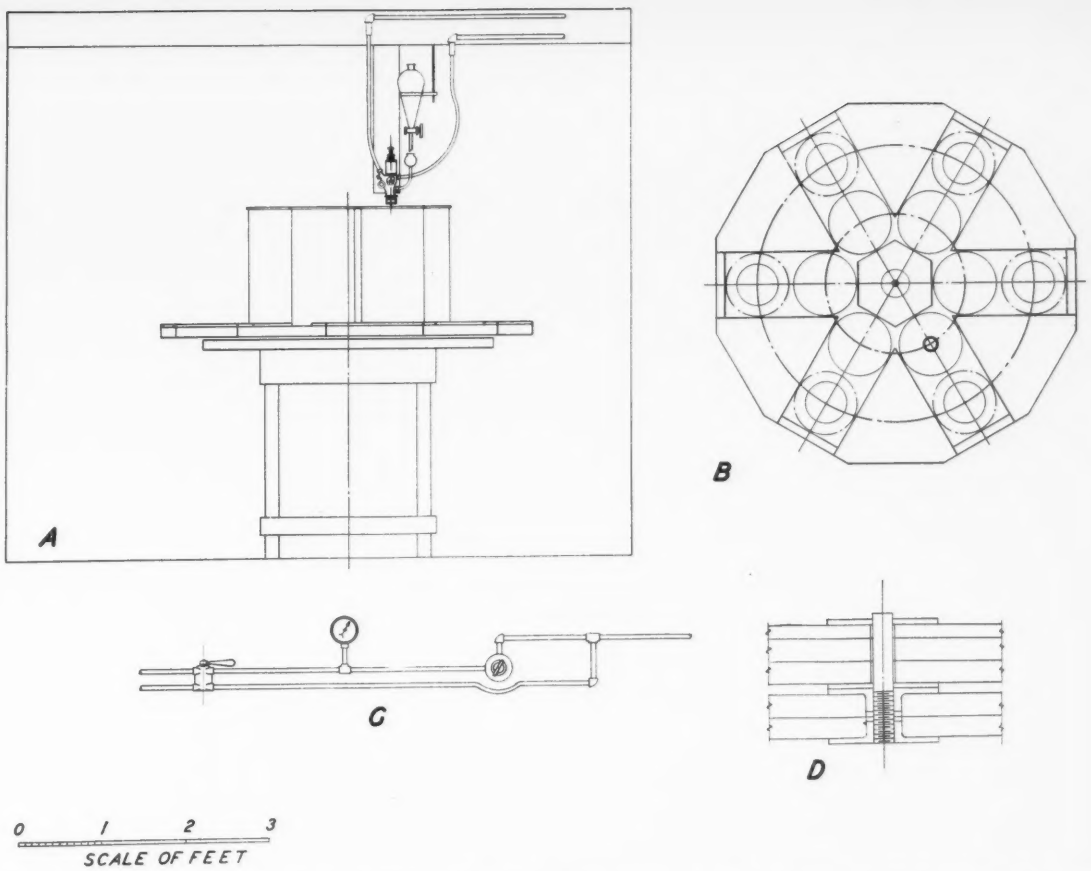

Figure 2. A turntable for testing fly sprays, with some of its parts. A, The apparatus as it stands in a small constant-temperature room. B, Top of the turntable. C, Piping of air lines. D, Pivot for turntable. (Scale applies only to A and B.)

warping. Holes (6 inches in diameter) to contain Petri dishes were cut in the upper layer before the two were fastened together. These holes are shown in *B* by the small solid circles near the periphery of the table. Guides and stops are provided on the turntable so that the cylinders can easily be brought under the nozzle of the spray gun and can be pulled quickly from their position, represented by the solid circles, where they are filled with mist, to their position, represented by the dot-and-dash circles, where the mist settles on the screened Petri dishes, each containing 100 flies. The holes for the dishes are deep enough to permit the cylinders to slide over them without touching the 14-mesh wire-screen covers of the dishes. The bottom of each dish is covered with a circle of filter paper, and the screen is held over the dish by a celluloid collar band.

The spray gun is shown in *A*, and its position over a cylinder indicated by the small heavy circle in *B*. The gun is supplied by two air lines, both of which pass through a three-way stopcock (*C*, left), which is located at a distance from the gun. The air line at the right of the gun (*A*) carries an unregulated pressure between 25 and 30 pounds per square inch. The line on the left is regulated by the reducing valve (*C*, right) to give a pressure of 5 pounds per square inch. When the stopcock is opened, the high-pressure line opens the needle valve in the gun (*A*) and at the same time the low-pressure line atomizes the liquid that was introduced into the gun through the thistle tube. When the stopcock is closed, the needle valve of the gun closes by spring action as the pressure on it is released by the opening of a port in the stopcock. This arrangement prevents drip from the gun. A reservoir for acetone is placed over the thistle tube for convenience in washing out the gun between treatments.

A series of 36 tests is made as follows: More than 3,600 flies about 2 days old are chilled at about 26° F. in a special electric refrigerator having a capacity of about 6 cubic feet. An exposure of about ¾ hour is required to immobolize the flies, which are then counted into the Petri dishes, 100 flies per dish. The first 6 dishes are placed in the holes on the turntable before the flies are counted into the last 6. From the time the flies are placed in the Petri dishes until they are treated, ¾ to 1½ hours elapse. At the temperature of the testing room (80° F.) the flies resume their normal activity in a few minutes and are ready to be treated. The liquids to be tested are measured out in advance, 5 cc. to a test tube.

With cylinder No. 1 in position under the spray gun, the operator pours the contents of the first test tube into the thistle tube leading to the gun, sprays the entire 5 cc. into the cylinder in 4 seconds, and immediately pulls the cylinder over the dish of flies. He then runs acetone into the gun and sprays it through into a cloth to clean the gun. He turns the table to the next ratcheted position, bringing cylinder No. 2 into place under the gun, pours the contents of the second test tube into the gun, and is ready to spray again 30 seconds after the first spraying. He repeats the operations just described and thus goes around the table in 2½ minutes. Each cylinder is allowed to stand over the flies for 10 minutes. It is then pushed back to its original position, and the flies are transferred to 9½-inch cubical cages, which have already been described (2). The cages are placed in an adjacent

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constant-temperature room, and the cylinders and the table are wiped off. The second set of 6 dishes of flies is brought in and the cycle is repeated. The 36 treatments are completed in about 1½ hours. Finally, food (milk-soaked cotton) is placed in each of the cages.

The foregoing method has been used successfully for kerosene, alcohol, and acetone extracts or solutions. Nevertheless, it appears that many changes of materials and structure can be made in the equipment to increase its usefulness and durability and to decrease its cost. Accordingly, a new turntable is now being designed, and the method will not be recommended until the performance of the new table has been studied.

Results.—When 5 cc. of acetone or an acetone extract is sprayed into a cylinder, the acetone evaporates so rapidly that the flies do not come in contact with the liquid but are exposed to acetone vapor and, in the case of extracts, to finely divided solid particles that separate from the evaporating droplets. The immediate effects of acetone and of extracts prepared with it are the same, the flies being anesthetized by acetone before the end of the 10-minute exposure period. In a few hours after being transferred to the observation cages, the flies exposed only to acetone vapor recover completely, whereas those exposed also to *Cracca* extractives are more or less permanently affected, the mortality depending on the quantity and nature of the extractives.

In the section on chemical determinations it was pointed out that the acetone extracts of the air-dried, ground plant materials were made so that 1 cc. was equivalent to 200 mg. of plant material. These extracts were tested against house flies with and without dilution. For comparative purposes the concentration of the undiluted extracts is called 200 mg. per cc. and that of the diluted extracts is expressed in the same way. It should be borne in mind that these concentrations do not represent quantity of material dissolved in acetone, but refer to the quantity of plant material from which the extracts were made.

Extracts of 28 samples were first tested at 16 mg. per cc., this concentration having been found suitable for detecting promising samples. Positive results were given only by the following samples: I. D. No. 1692, 1700, 1760 (seed), 1791, 1927, 1928, and 1929. To determine roughly the relative effectiveness of these and the other samples, all but four extracts were tested again in the following manner: The extracts were tested undiluted (200 mg. per cc.), and these tests were repeated a few days later. Six extracts killing less than 50 per cent of the flies in 3 days were discarded. The remaining 18 extracts were tested in duplicate at 120 mg. per cc. Three extracts killing less than 50 per cent of the flies were discarded. The remaining 15 extracts were tested in duplicate at 40 mg. per cc. Nine extracts were discarded by the same criterion. The remaining 6 extracts, which, with the exception of I. D. No. 1692, were also found to be the best in the preliminary test mentioned above, were tested in duplicate at two concentrations, 16 and 8 mg. per cc. The best samples were I. D. Nos. 1927, 1928, and 1929, *Cracca virginiana* roots from Texas. The extract of *C. lindheimeri* (No. 1760) seeds was about equally effective.

As it was desired to express the results of these tests in Table 1, it was impracticable to give the percentage mortalities at all concentrations tested. Instead, a grade

Table I. Chemical Composition and Insecticidal Value of Domestic Species of CRACCA

I. D. No.	Species	Portion of plant	Source	Obtained by	Date of collection (approx.)	Acetone extraction					Rote—none by CCl_4 extraction	Kerosene extraction (1 cc = 240 mg.)[1]		
						Total extractives	"Rotenone" equivalent to methoxyl content	Optical rotatory power in 1-dm tube (1cc. = 200mg.)	Durham color test	Toxicity to house flies		"Rotenone" equivalent to methoxyl content	Toxicity to house flies	
													Flies on floor of cage 1 hr. after treatment	Mortality in 3 days
						Per cent	Per cent	°V.	Grade	Grade	Per cent	Mg. per cc.	Per cent	Per cent
712	Virginiana	Roots	Western North Carolina	R. C. Roark	June 1931	4.5	...	..	1	[2]	..	...	..	..
724	Virginiana	Roots	Fountain Inn, S. C.	R. C. Roark	June 1931	6.0	3.4	—1.0	0	[2]	..	2.8	1.0	1.3
829–60	Virginiana	Roots	College Station, Texas	V. A. Little	June 1932	8.7	5.7	..	3	..	0.5	...	..	..
1087	Virginiana	Roots	Milana, Texas	V. A. Little	June 1932	5.0	3.1	—1.1	3	..	[3]	...	..	..
1090	Virginiana	Roots	Warsaw, N. C.	R. C. Roark	Aug. 1932	4.8	...	—0.8	1	2	..	2.4	52.7	6.2
1092	Ambigua	Roots	Hope Mills, N. C.	R. C. Roark	Aug. 1932	4.6	2.4	—1.0	1	1	..	0.7	1.7	1.3
1098	Virginiana	Roots	Zebulon, N. C.	R. C. Roark	Aug. 1932	3.7	...	..	1	[2]	..	...	..	..
1099	Virginiana	Roots	Raleigh, N. C.	R. C. Roark	Aug. 1932	3.9	...	..	0	1	..	...	..	..
1663	Virginiana	Roots	Bogalusa, La.	O. M. Freeman	May 1933	6.5	4.7	—1.2	1	2	..	5.8	25.0	0.9
1692	Virginiana	Roots	Tifton, Ga.	Ga. Exp. Sta.	May 1933	9.3	7.7	—1.8	2	2	..	7.6	29.3	2.2
1700	Lindheimeri	Roots	Derby, Texas	T. P. Metcalfe	May 1933	7.6	...	..	2	3	..	...	..	..
	Lindheimeri	Aerial	Derby, Texas	T. P. Metcalfe	May 1933	5.3	...	..	0	..	..	...	..	..
	Lindheimeri	Roots	Derby, Texas	T. P. Metcalfe	June 1933	11.8	9.0	—1.8	1	1	..	7.1	3.0	1.8
1760	Lindheimeri	Hulls of seed pods	Derby, Texas	T. P. Metcalfe	June 1933	1.9	0.7	—0.3	1	..	..	...	..	..
	Lindheimeri	Seeds	Derby, Texas	T. P. Metcalfe	June 1933	15.6	...	..	3	3	..	...	..	..
1791	Latidens	Roots	Valparaiso, Fla.	O. M. Freeman	July 1933	4.2	2.5	—1.1	3	3	0.41	1.6	95.7	42.0
1830	Virginiana	Roots	Hartford, Ark.	H. V. Claborn	July 1933	5.5	...	..	1	2	..	...	..	..
1891	Virginiana	Roots	Barcroft, Va.	E. L. Gooden and W. N. Sullivan	Sept. 1933	3.1	...	..	0	1	..	1.7	1.0	0.4
1892	Virginiana	Roots	Alexandria, Va.	E. L. Gooden and W. N. Sullivan	Sept. 1933	3.3	...	..	0	1	..	2.0	3.7	1.8
1927	Virginiana	Roots	Milano, Texas	V. A. Little	Oct. 1933	5.1	3.0	—0.8	3	3	0.27	...	..	..
1928	Virginiana	Roots	Milano, Texas	V. A. Little	Oct. 1933	4.3	...	..	3	3	0.39	...	..	..
1929	Virginiana	Roots	College Station, Texas	V. A. Little	Oct. 1933	6.1	...	..	3	3	0.19	...	..	..
1930	Virginiana	Roots	College Station, Texas	V. A. Little	Oct. 1933	5.8	...	..	1	2	..	...	..	..
1943	Virginiana	Roots	Berwyn Heights, Md.	H. A. Jones and E. L. Gooden	Oct. 1933	3.7	...	..	1	1	..	...	..	..
2003	Virginiana	Roots	East Chattanooga, Tenn.	I. M. Carter	Dec. 1933	5.6	...	..	0	0	..	...	..	..
2060	Lindheimeri	Roots	Derby, Texas	T. P. Metcalfe	Dec. 1933	9.8	6.9	..	1	1	..	...	..	..
2350	Virginiana	Roots	Riggs Mill, Md.	H. A. Jones and E. L. Gooden	June 1934	3.3	1.7	...	1	1	..	...	..	..
2452	Hispidula	Roots	White Lake, N. C.	E. L. Gooden	July 1934	8.7	...	..	2	2	..	...	..	..
	Ambigua	Roots	White Lake, N. C.	E. L. Gooden	July 1934	6.1	...	..	1	2	..	...	..	..
2453	Ambigua	Seeds and pods	White Lake, N. C.	E. L. Gooden	July 1934	5.0	...	..	1	2	..	...	..	..
2454	Spicata	Roots	White Lake, N. C.	E. L. Gooden	July 1934	4.3	...	..	0	0	..	...	..	..
2757	Virginiana	Seeds (and pods)	Beltsville, Md	H. A. Jones	Aug. 1934	9.0	...	..	0	[2]	..	...	..	..

[1] Air-dried plant material. (Moisture determinations on 24 of these samples of roots gave results ranging from 5.6 to 7.6 per cent.)
[2] Ineffective in one preliminary test.
[3] This is the sample from which Clark isolated retenone.

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number has been assigned to each sample expressing roughly its relative effectiveness according to the following key: 0, no effect with undiluted extract; 1, from definite effect at 200 mg. per cc. to 50 per cent kill at 120 mg. per cc.; 2, greater than 50 per cent kill at 120 mg. per cc. to 50 per cent kill at 40 mg. per cc.; and 3, greater than 50 per cent kill at 40 mg. per cc.

Data on the relative effectiveness of acetone extracts of derris, cube, and *Cracca* (I. D. No. 1927) have been published elsewhere by the writers.

Discussion

All data on which this discussion is based are given in Table 1. The results will first be considered without reference to the particular species of *Cracca* involved.

The 9 samples that were tested as kerosene extracts fell into three groups on the basis of effectiveness. I. D. No. 1791 was the only sample that gave a good kill. I. D. Nos. 1090, 1663, and 1692 stand out among the remaining 8 samples, because they had a marked temporary effect on the flies. If these results are compared with those on acetone extracts of the same samples, it will be noted that I. D. No. 1791 is rated 3; I. D. Nos. 1090, 1663, and 1692 are rated 2; and the others, with the exception of I. D. No. 724, are rated 1. It seems likely, therefore, that if all samples had been tested as kerosene extracts, they might have been assigned grade numbers that would have corresponded closely to those representing the relative effectiveness of the acetone extracts. The reader's attention can therefore be centered on the grade numbers representing the toxicity of the acetone extracts to house flies.

The most important question to be considered is whether the relative effectiveness of the acetone extracts could have been predicted by any of the chemical determinations. It is not necessary to present a graph or table to show that the results for total acetone extractives, methoxyl content, and optical rotatory power of the acetone extracts are not well correlated with the insecticidal grade numbers. For example, according to these three determinations I. D. No. 1760 (root) should have been the most effective sample and I. D. No. 1927 one of the poorest, whereas the reverse was true. In derris and cube the writers (6) have found fairly good correlation between total extractives or methoxyl content and effectiveness. Possibly such correlation is lacking in *Cracca* because it may contain larger and more variable proportions of non-toxic constituents than do derris and cube.

Fortunately a rough chemical index of effectiveness is provided by the Durham color test. The relation between the grade numbers of the color tests and those of the fly tests is shown in Table 2. It is evident that no blue or blue-green color or a trace indicates a poor sample and that a distinct blue or blue-green color indicates an effective sample. Rotenone was determined only in the five samples that gave the highest grade of color. It could not be determined in less effective samples, and therefore conclusions cannot be drawn as to the relation between rotenone content and effectiveness.

TABLE 2.

Correlation between results of Durham color tests and house fly tests of acetone extracts of *Cracca*. The figures represent number of samples in each grade.

		Durham test				
	Grade	0	1	2	3	Total Samples
Fly test	0	2	—	—	—	2
	1	3	5	—	—	8
	2	—	6	2	—	8
	3	—	—	1	5	6
	Total samples	5	11	3	5	24

The effectiveness of *Cracca virginiana* roots will now be considered with reference to their source. Of 6 samples from Texas, 5 were in grade 3 of the color test, and 1 in grade 1. Of the 13 samples from other States, 1 from Georgia was in grade 2 and the others were in grade 1 or 0. It was pointed out in the introduction that samples from the Carolinas were ineffective against mosquito larvae as compared with 2 samples from Texas. Although the total number of samples is small, it may be significant that all but 1 sample from Texas were good, whereas none from the Carolinas, Virginia, or Maryland was effective enough to be called promising.

Extracts of the roots of two other species of *Cracca*, *C. latidens*, (I. D. No. 1791) and *C. lindheimeri* (I. D. No. 1700), were rated grade 3 in the fly tests. These species have not heretofore been reported as possessing insecticidal properties. *C. latidens*, which occurs in the pinelands of the Florida peninsula, is said to have exceedingly long roots. The roots of *C. lindheimeri* are large, tuberous, and woody. This species is found in Texas, New Mexico, and northern Mexico. The roots of three other species (*C. ambigua*, *C. hispidula*, and *C. spicata*) were not promising.

It is interesting, but probably of no practical importance, that the seeds of *C. lindheimeri* (I. D. No. 1760) yielded an extract that was much more effective than the extract of the roots of the same plant.

Little (8) concluded that the roots of *C. virginiana* compare favorably as an insecticide with those of derris. The writers' comparison of kerosene extracts of an ordinary samples of derris root with those of the sample of *C. latidens* (I. D. No. 1791) showed that 1 part by weight of the derris was equivalent in effect against house flies to more than 8 parts by weight of the *Cracca*. A similar difference in effectiveness against house flies was found in the writers, (6) tests of acetone extracts of derris, cube, and a sample of *C. virginiana* (I. D. No. 1927), average commercial samples of derris and cube being about 10 times as toxic as the sample of *Cracca*.

The low rotenone content of the best samples of *Cracca* indicates that they are not on a par with the derris and cube that are now commercially available. Although substances other than rotenone probably play a part in the insecticidal action of *Cracca*, there are indications that they are not so important in *Cracca* as in certain samples of derris that are low in rotenone. However, the writers are as much impressed by the practical possibilities of *Cracca* as was Little. Undoubtedly more toxic samples than the best here tested can be found, and perhaps the toxic constituents of the roots can be increased by selection, breeding, and cultivation. The Division of Drug and Related Plants of the Bureau of Plant Industry, cooperating with the Texas Agricultural Experiment Station, is now endeavoring to improve *Cracca* for insecticidal purposes. For practical use it would not be necessary to raise the average rotenone content of *Cracca* to the level of that of derris and cube, provided it becomes economical to use a larger quantity of *Cracca* than of derris or cube for a given purpose.

Summary

Chemical and insecticidal tests were made on 32 samples of *Cracca* collected in different parts of the United States. Twenty-seven of these samples were roots: 19 of *C. virginiana*, 3 of *C. lindheimeri*, 2 of *C. ambigua*, and 1 each of *C. latidens*, *C. hispidula*, and *C. spicata*. The other samples consisted of aerial portions, hulls of seed pods, and seed of *C. lindheimeri*, and mixed seeds and pods of *C. virginiana* and *C. ambigua*. Ten States, from Texas to Maryland, were represented in the collections.

The following determinations were made on all or some of the 32 samples: Total acetone extractives, rotenone content, methoxyl content, optical rotatory power of acetone extract, and Durham color test. The relative effectiveness of kerosene and acetone extracts was determined against house flies, the acetone extracts being tested by a method not hitherto described.

The relative effectiveness of the kerosene extracts was

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similar to that of the acetone extracts, and the latter was well correlated with the degree of blue or blue-green color given by the Durham test. By this simple test the effectiveness of a sample of *Cracca* can be roughly predicted. The insecticidal results were not well correlated with other chemical determinations. As only a few samples contained enough rotenone to permit its quantitative determination, data sufficient for comparison of rotenone content and effectiveness were not obtained. Four samples of *C. virginiana* root from Texas and one of *C. latidens* from Florida contained from 0.2 to 0.5 per cent of rotenone.

The most effective samples of *C. virginiana* root came from Texas. Samples from the Carolinas, Virginia, and Maryland were relatively ineffective. A sample of *C. latidens* root from Florida, one of *C. lindheimeri* root from Texas, and seeds of the latter species were also highly effective.

In spite of its lower content of toxic materials, it is believed that *Cracca* might be developed to an extent permitting competition with derris and cube.

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Dry rotenone crystals exposed for 42 days to direct sunlight retained no activity. Derris powder is less sensitive to the effect of sunlight than rotenone, and if dry and protected from the sun may keep for years. Dry powder spread out in the sun lost about 50 per cent of its activity after 3 days. The loss was very much less in the shade. When mixed with water the powder was still equal to fresh powder after 4 to 11 days, but deteriorated markedly after 25 days. In a soap solution the powder lost much of its activity in 2 days. Rotenone is much more poisonous to insects than dihydrorotenone. P. A. van der Laan. *Indische mercuur* 58, 257-9 (1935).

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United States exported 112,694 lbs. of household disinfectants, deodorants, germicides, etc., during July, 1935, the value of these products totaling $14,113.

EXTERMINATORS TO MEET OCT. 20-23

The annual convention of the National Association of Exterminators & Fumigators will open October 20th in the Hotel Statler, Detroit, with a meeting of the board of directors, according to plans announced by secretary William O. Buettner. General sessions will be held on the following three days, with the following speakers among those scheduled to address the group:

Dr. R. C. Roark, U. S. Dept. of Agriculture, "The Possibilities of Household Pest Control with Derris and Pyrethrum."

Dr. Thos. E. Snyder, U. S. Dept. of Agriculture, "Termites."

C. C. Johnson, Innis-Speiden & Co.; M. G. Jorgensen, Los Angeles, "Rats."

Dr. Alfred Weed, John Powell & Co.

Major Joel I. Connelley, Chicago Dept. of Health.

Mr. Legg, Detroit Dept. of Health.

Dr. C. L. Williams, U. S. Public Health Service.

Aside from the addresses scheduled, there are a number of topics which will come up for discussion on the floor of the meeting. These include: a discussion of ethics and an inquiry into the possibility of a voluntary code; a resume of current legislative problems; consideration of a change in the association slogan; detailed explanation of the insurance set-up; discussion of changes in constitution and by-laws; election of officers and directors; award of honorary memberships.

Both members and non-members of the association are eligible to attend the coming meeting. A nominal registration fee of $5.00 or $7.50 will be in effect. C. Norman Dold, 208 N. Wabash Ave., Chicago, is chairman of the convention committee and C. Russell Lee, 8131 Linwood Blvd., Detroit, heads the local Detroit committee for the meeting.

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NEW WATER-EMULSION WAX

Colloy wax is a new self-emulsifying wax which the manufacturer states has properties similar to carnauba wax, and which is suitable for use in water-emulsion floor waxes and similar products in place of carnauba. The product is stated by the maker, The Beacon Co., 87 Bickford St., Boston, to form stable emulsions with water which are self-levelling with a minimum of foam.

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A new shoe polish called "Lily White" is now being made by G. L. Lanier, 787 East College St., Decatur, Ga. A four-ounce bottle of the new product retails for 25c.

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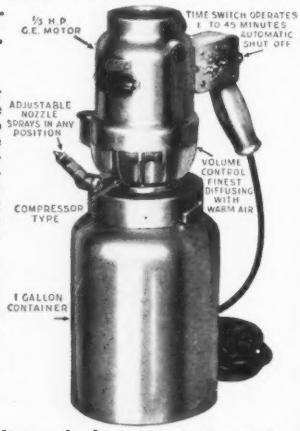
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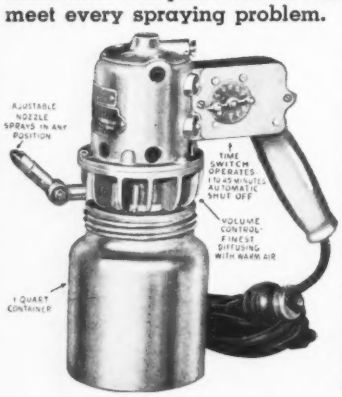
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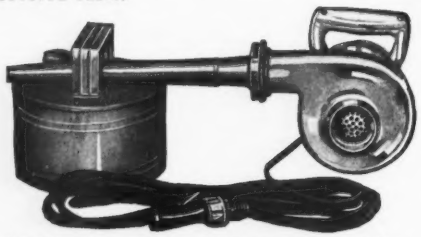

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"The basic food is dried bread crumbs. Obtain dried but not moldy white bread in whole loaves (but not sliced). Jewish or non-milk bread is best. Break up bread with hands and put through grinder with about 3/8-inch holes and then press through sieve with 40 holes to the inch. Mix the bread and other ingredients first and add the poison lastly."

	Pounds
Ground dried bread	65
Ground fresh pork fat	5
Ground fresh halibut or haddock or cod	20
Powdered red squill	10
Ground dried bread	85

Glycerine	5
Powdered red squill	10
Ground dried bread	37
Glycerine	3
Powdered red Squill	10

Fresh bait 50

Fresh bait has hamburger, or ground sweet potatoes (raw but canned is better), or ground apples, or ground bananas.

	Pounds	Ozs.
Ground dried bread	10	10
Mazola oil	1	4
Zinc phosphide		10

Ground dried bread	5	
Mazola oil		10
Zinc phosphide		10
Some fresh bait, as No. 3	6	4

Ground dried bread	29	6
Ground fresh pork fat	2	
Ground fresh halibut	6	
Powdered thallium sulphate		10

Ground dried bread	18	2
Glycerine	1	4
Powdered thallium sulphate		10

R. A. Schaffer, Chicago exterminator, has moved his headquarters recently from 1430 Wellington St. to 1818 Belmont Ave.

H. Kaplan has recently organized the Greater New York Exterminating Company at 109 West 116th St., New York.

ROACH POWDERS

A compilation of practical information on their formulation, properties, . . . when and where, they should be used, . . . and when not. A special staff article based on the views of authorities on the subject . . . in the next issue of SOAP.

McCORMICK ON BALTIMORE COMMITTEE

Charles P. McCormick, president of McCormick & Co., Baltimore, and also president of the National Association of Insecticide & Disinfectant Manufacturers, was recently appointed a member of a special committee of three by Mayor Jackson of the City of Baltimore to investigate tire purchases by the city. Other members of the committee included Burdette B. Webster, prominent Baltimore attorney, and L. Manuel Hendler, president of the Hendler Creamery Co. The appointment of the three men was criticized by George Sellmayer, president of the Baltimore City Council, because of their close political connections with the mayor. Mr. Sellmayer was the person who originally called for a probe of city purchases and the appointment of the committee, including Mr. McCormick, by Mayor Jackson followed promptly.

In the analysis of 32 specimens of derris root, the highest rotenone content found was 10.6 per cent, which was in *D. elliptica* 22 months old and *D. mataccensis* 34 months old. In the case of the latter, the rotenone content remained unchanged after a year's storage. There is apparently no correlation between total ether extract and rotenone content. J. P. Schuitemaker. *Indische mercuur* 58, 165-8 (1935).

Both pyrethrum and derris are highly toxic to the tobacco flea beetle but the toxicity of these substances is lost in a few days after application to the tobacco plants. Barium fluosilicate does not show its toxicity to flea beetles at once, but it keeps the beetle population down to a low figure over an extended period of time. Donald S. Lacroix. *Conn. Agr. Expt. Sta., Bull.* 367.

Clarks Von Hoff, Chicago exterminator, has moved recently from 120 N. La Salle St. to 179 W. Washington St.

Sur-Wa Exterminator Co., Cincinnati, has taken new quarters at 1573 Central Ave.

Utility Rat Embalmer Co., Cincinnati exterminating concern, has recently moved from 519 Main St. to 1510 Moore St.

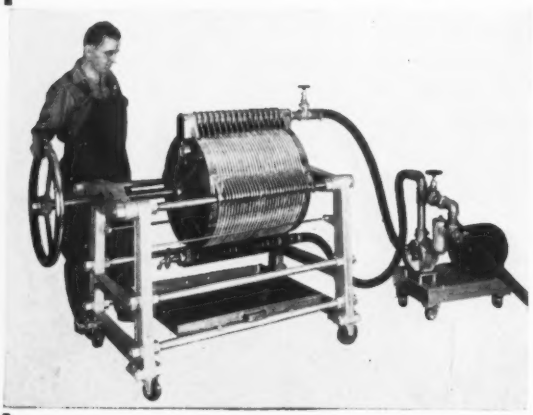
Pyrethrum culture is being promoted in Bulgaria as a part of an official project to diversify crops. Plantings of more than 300 acres have been made.

Hugo Wagenseil & Associates, Dayton, Ohio, have been appointed to place test copy in publications for the Fountain Products Company, of Dayton, manufacturer of "Trisom" insecticide shampoo dog soap.

Kenneth C. Allen, managing director of Stafford Allen & Sons, Ltd., London, essential oils, is now in United States, making his headquarters with his American agents, Ungerer & Co., New York.

Why handicap sales by offering CLOUDY LIQUID SOAP?

The manufacture of a clear, sparkling liquid soap or shampoo may have been a problem before these new Ertel filters were developed but that problem is solved now. If you are having difficulty in persuading consumers that a cloudy soap will do as good a job as one that looks clean and pure send us a sample of your product and let us filter it for you. These filters are available in various sizes to meet almost any production or price requirement. They can be used on other liquids as well—fly sprays for example.



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Here is the ideal inexpensive mixer for polishes, disinfectants, cleaning and washing fluids, etc. Also useful in incorporating perfumes and colors in your liquid products. A machine with no end of uses in any plant. Assures a perfect mix. Made in various sizes for every factory—large and small.

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National Association of INSECTICIDE and DISINFECTANT MANUFACTURERS Incorporated 1914

LOWER FUMIGATING INSURANCE RATES

The efforts of the National Association of Exterminators and Fumigators to have lower rates adopted for public liability insurance for members of the exterminating and fumigating industry seem already to have met with a measure of success, as the National Bureau of Casualty and Surety Underwriters has recently acted favorably on a proposal for rate reduction. The classifications, rates and minimum premiums for public liability for exterminating and fumigating operations are:

Code No.	*Classification*	*P. L. Rate*
3458	Exterminating Vermin—per $100 of receipts.	.50
	Minimum Premiums—per season or year—not subject to short rate adjustment (not cumulative with minimum premiums for Fumigating). P. L. $50.00	
3459	Fumigating .....per 1,000 cubic feet	*
	Minimum Premiums—per season or year—not subject to short rate adjustment (not cumulative with minimum premiums for Exterminating vermin). P. L. $250.00	
	*First.....3,500,000 cubic feet	.075
	Next.....6,500,000 cubic feet	.03
	All over.....10,000,000 cubic feet	.01

The minimum premium for those engaged in both exterminating and fumigating is $250.00. There is no reduction if fumigation only is done. The above rates are for a limit of $5,000 for all damages arising out of bodily injuries to or death of one person; and, subject to that limit for each person, a total limit of $10,000 for all damages arising out of bodily injuries to or death of two or more persons in any one accident.

—— ♦ ——

A concern in Johannesburg, South Africa, is interested in securng an agency for the sale of American household insecticides, as well as cosmetics and toilet preparations. Interested parties may communicate through the U. S. Bureau of Foreign and Domestic Commerce, addressing inquiries care of opportunity No. 9256.

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COAL TAR DISINFECTANTS

(*From Page* 92)

disinfectant in addition to the germ killing properties. These cleaning and deodorizing properties are not necessarily greater in the high coefficient disinfectants than in the low coefficients and for special uses it may be just as economical to buy the lower coefficients.

Jim: With some of the disinfectant we have bought I have noticed a scum in my cleaning pails which seemed to come from the disinfectant. Is this because there is anything wrong with the disinfectant?

Smith: Not necessarily, but higher priced disinfectants are made with a different emulsifying agent from the lower priced ones. When you dilute disinfectants with hard water, the lower priced disinfectant is more apt to give you scum than the higher priced ones. In this respect you are likely to have better results with the higher coefficient disinfectants mainly because they are made with better emulsifying agents. Some waters, however, are so very hard that they will cause a scum with any disinfectant. In this case it is necessary to soften the water before using or else to buy special disinfectants which is almost a necessity in marine work where soft water is not available.

Dalton: Do we lose anything if we do not get a good milky solution when using a disinfectant?

Smith: You certainly do. A disinfectant that is not in perfect solution is not doing its work, and it is very important to adjust your solutions so that you do get perfect emulsions. If you do not, you can blame either the disinfectant or the water, and possibly other cleaning agents that you may be adding to the water. In other words it is a waste of money to use a disinfectant unless you get the right kind of emulsions and I will be glad to look into this matter for you in case you have trouble with emulsions.

Burr: Are there any uses for the disinfectant in my home?

Smith: In addition to the uses which we have already talked about which also apply in the home to sinks, bowls, garbage cans and scrubbing floors, there are many personal uses which are described on our label. On cuts and wounds, coal tar disinfectant, properly diluted, is a quick, safe and handy application. You will be surprised what a refreshing foot bath you can obtain by adding a little coal tar disinfectant to the water.

Jim: What instructions can I give to the porters to be sure that the disinfectant is used in just the right strength?

Smith: For general disinfectant use, you should use it diluted with water in a proportion 25 times the coefficient. For example, you have been buying coefficient 6. Therefore for general disinfectant use you ought to dilute it with water in the proportion of one part of disinfectant to 150 parts of water. I suppose you use 2 gallons of water in your pails. Therefore about 2 ounces of disinfectant or about half a cupful would give you a proportion of about one to 125. In general I would recommend that you have a cup with a mark on it and train the porters to use about the same amount of water and the same amount of disinfectant in the pail. For deodorizing uses even less disinfectant may be found to give satisfactory results.

Burr: Mr. Dalton, you had better give Mr. Smith an order for another drum of disinfectant and have him send some up to my farm. It seems to be pretty important stuff to have it around.

Smith: Yes, and it is more important to use it systematically and persistently. I do not guarantee that it will prevent all disease, kill all germs and insects where it is used, but it will go a long way in that direction. Next time I visit you I would like to discuss with you other forms of disinfectants for which you have a definite need.

Author's Note:—There are many other Farmers Bulletins on methods of using disinfectant on the farm, a list of which can be obtained by writing to the U. S. Printing Office. A few, however, are as follows: Farmers Bulletins Nos. 713, 798, 954, 1155 and 1330.

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MOTH PROOFING PRODUCTS

REFINED NAPHTHALENE

CRUSHED, CRYSTALS, POWDER, LUMP, CHIPS, FLAKES

For use in the manufacture of deodorizing blocks, moth preventives and other insecticides.

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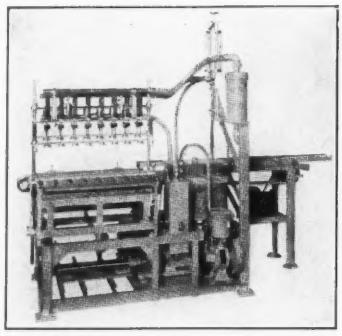
National Association of INSECTICIDE and DISINFECTANT MANUFACTURERS Incorporated 1914

U. S. STRAIGHT LINE VACUUM FILLER with Vacuum Bottle Cleaning Unit



Produces cleaned bottles at instant of filling—Economizes on space, saves installation costs—Increases production capacity—One operator handles cleaning and filling operations under dual head. Has micromatic adjustment wheel for regulating speed to synchronize with other machines in line. Made in either fully automatic or semi-automatic types. Furnished in 6-8-10-12 and 14 tubes as desired.

Everything in Bottling Machinery

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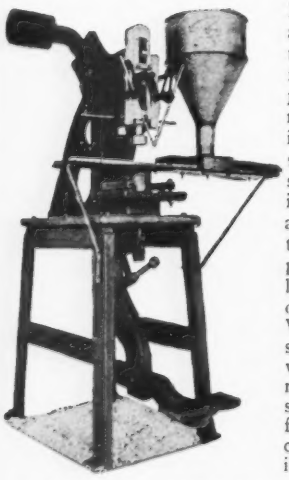
4012 No. Rockwell St. Chicago, Ill.
Offices in all principal cities

Machine-Made DEODORANT CAKES and BLOCKS *are big sellers!*



Make your deodorant and moth cakes with this heavy pressure foot press by the cold process and save money while you are increasing sales. A smooth, even cake will sell better because of its improved appearance and will cost less to make because this press not only cuts labor but saves 5% of your raw material. Why not let us make some sample cakes with your own para, naphthalene, etc., and submit complete information regarding cost and manufacturing process?

HOUCHIN MACHINERY CO., INC.
HAWTHORNE, N. J.

SPECIALTY SOAP PRODUCTS

Liquid Soap Base
Potash Oil Soap
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Philadelphia, Pa.

Ask for samples of above specialty bulk products.

NEW PRODUCTS

(*From Page 97*)

this for a guide. The ideas advanced have been used or developed over a period of eighteen years. The ratio of successes to failures is doubtless higher having been systematic and schematic than had slipshod, "hope-for-the-breaks" procedure been followed.

The whole has been written in rather light and flippant vein and why not? Manufacturers are prone to take themselves and the development and exploitation of their specialties entirely too seriously. As for the consumers, they don't look upon buying a cake of soap, a tube of shaving cream or a jar of facial cream as such a serious business. "I'll stick to my horse" will probably sell more gasoline than "99 million foot pounds per gallon."

—— ♦ ——

Prepared montan waxes are superior to carnauba wax for making wax pastes, that is, partly crystalline, partly colloidal suspensions of waxes in organic solvents. The pastes obtained with montan wax bind a solvent such as turpentine oil or heavy benzine more firmly, in some cases are capable of greater dilution, appear more homogeneous, and lose their solvent more slowly to produce a coherent cake without cracks or a tendency to crumble. G. O. Baerlocher. *Ferben-Chem.* **6,** 168-70 (1935).

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GERMICIDAL DETERGENTS

(*From Page 30*)

C. Other Phenols and Soaps

Soap Used Per Cent	1-200 *Phenol*	*Count* 1-4,000 *Sodium Orthophenyl Phenol**	1-20,000 *Chlorthymol*
1.00 sodium ricinoleate	5,000	10,000+	10,000
0.50	250	10,000	5,000
0.20	200	1,000	3,500
0.05	10,000	10,000+	300
1.00 coconut oil soap	250	10,000++	10,000+
0.50	500	10,000+	10,000+
0.20	1,000	10,000	10,000
0.05	1,500	10,000++	250
1.00 castile soap	2,500	10,000++	10,000+
0.05	5,000	10,000+	10,000+
0.02	2,500	10,000+	10,000
0.05	10,000	10,000	300

Phenol Per Cent	*Soap Conc.* Per Cent	*Count*
1.00 resorcin	0.00 sodium ricinoleate	8,000
1.00	0.500	1,200
1.00	0.100	750
1.00	0.10	4,000
0.02 thymol		10,000
0.02	0.10 sodium ricinoleate	650
0.05 beta naphthol		10,000
0.05	0.10	2,500
0.25 cresol		8,000
0.25	0.10	0
0.01 hexyl resorcin		10,000+
0.01	0.02	2,500
0.01	0.10	5,000
0.01	1.00	10,000
0.01	5.00	10,000+

* Due to the fact that too high a dilution of the phenol was chosen for this series of tests, the data obtained do not show very great germicidal power for the sodium ortho phenyl phenol. The same general effect of soap, however, is noted.

The synergistic property of soaps is again shown by these data which demonstrate the action of small amounts of unsaturated soaps on solutions of phenols, giving to them useful germicidal power in low concentrations or dilutions in which by themselves they are not germicidal.

Table VII.
Germicidal Efficiency of Phenols in the Presence of Soaps and Alkalies. Synergistic Action of Soaps on Phenols and Alkalies Combined.

Phenol Con.	*Per Cent Soap Concentration*	*pH 5*	*pH 6*	*pH 7*	*pH 8*	*pH 9*	*pH 10*
		Counts					
1-200	0.10 sodium oleate	500	700	900	750	450	450
1-200	0.10 sodium ricinoleate	0	0	0	450	450	900
1-200	0.10 sodium resinate	0	85	200	400	400	600
1-200	0.10 sodium linoleate*	0	0	2	75	75	80
1-200	0.10 sodium stearate	4,000	5,000	3,000	2,000	2,000	1,500

* Linseed-oil soap.

		ph 5	*pH 7.5*	*pH 10*
1-200	0.02 sodium oleate	1,500	160	250
1-200	0.02 sodium ricinoleate	0	260	900
1-200	0.02 sodium resinate	0	10	4
1-200	0.02 sodium linoleate	0	56	115
1-200	0.02 sodium stearate	540	3,600	1,020
		pH 5	*pH 6.8*	*pH 10*
1-200	0.01 (98% sod. ric. + 2% sod. stearate)	0	3	370
1-200	0.01 (90% sod. ric. +10% sod. stearate)	0	5	660
1-200	0.01 (95% sod. ric. + 5% sod. oleate)	1	2	300
1-200	0.01 (80% sod. ric. +20% sod. oleate)	0	4	330

Phenol Conc.	*Per Cent Alkali Used*	*Soap Concentration Per Cent*	*Count*
0.01	2.00 $Na_3PO_4.10H_2O$	None	10,000++
0.10	2.00 $Na_3PO_4.10H_2O$	None	10,000+
0.01	2.00 $Na_3PO_4.10H_2O$	0.10 sodium ricinoleate	300
0.10	2.00 $Na_3PO_4.10H_2O$	0.10 sodium ricinoleate	150
0.01	2.00 $Na_3PO_4.10H_2O$	0.01 sodium ricinoleate	5,000
0.10	2.00 $Na_3PO_4.10H_2O$	0.01 sodium ricinoleate	1,500
0.10	2.00 $Na_3PO_4.10H_2O$	0.50 sodium oleate	350
0.10	2.00 $Na_3PO_4.10H_2O$	1.00 sodium oleate	350
0.10	0.04 NaOH	0.50 sodium oleate	100
0.10	0.04 NaOH	0.10 sodium oleate	150
0.10	0.04 NaOH	0.10 sodium ricinoleate	600
0.10	0.04 NaOH	0.01 sodium ricinoleate	1,500

These interesting data again show very definitely this synergistic action of soaps in aiding the germicidal efficiency of phenols as the latter are being reduced by alkalies. This synergistic action, it is noted, applies in the same way to all types of phenols tested (phenol, cresol, resorcin, thymol, hexylresorcin, ortho phenyl phenol). Work in progress also indicates that the same holds true for the newer type of chlorinated phenol derivatives, which compounds (chlor phenol, chlor thymol, chlor carvacrol, chlor ortho phenyl phenol, etc.) appear to be less affected by the addition of alkali than do the corresponding non-chlorinated phenols. The exact extent of this synergistic action naturally varies with the different soaps used but the basic principle is the same, in each case, namely that small amounts of unsaturated soaps materially aid phenols and alkalies alone or together in their germ killing powers.

THESE data show, as previously pointed out by other workers (loc. cit.) that soaps in general aid phenols as germicides in a synergistic manner. In addition, the investigation of the writer as herein and previously reported shows the newly discovered fact that small amounts of such unsaturated soaps as sodium ricinoleate, sodium oleate, sodium linoleate (linseed oil soap) and sodium resinate act in contrast to such saturated soaps as sodium stearate and sodium palmitate to increase synergistically the germicidal potency of mixtures of phenols and alka-

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. . . the ideal perfuming device for theatres, hotels, dept. stores, etc. . . . made in six designs . . . artistic and effective . . . sold for use only with EDCO FLUID FRAGRANCE . . . made of specially treated clay compound . . . single servicing lasts two weeks . . . send for prices and details—the original manufacturer

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MADE BY ADDING
19 GAL. KEROSENE
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PYRETHRUM EXTRACT

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CRYS-TINTS

PERFUME and color Para Blocks and Crystals, Bath Salts and Moth Balls in one operation.

The use of Crys-Tints eliminates doubtful results for they provide uniform distribution of Odor and Color and are extremely lasting and stable.

Orange Blossom	Narcisse	Violet
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8 OUNCES TO 100 LBS., RECOMMENDED

$1.50 per Lb.
Double Strength, $2.90 per Lb.
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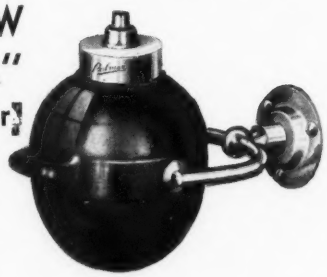
POWDER DISPENSER

Palmer's NEW "TIPOWDER" Soap Dispenser



At last an economical, positive-serving powder dispenser—with no mechanical parts to get out of order, no springs to cause trouble.

Positive in operation—impossible to become clogged. Patented dispensing device of pleasing design—yet simple and entirely practical. No metal bands, cracks or crevices to gather dirt or germs. Wiped clean as easily as a dish—and is tamper proof.

Tilting of dispenser permits pre-determined quantity of soap to flow smoothly and steadily—yet a wasteful continuous flow of soap is *absolutely impossible.*

All metal parts chrome plated—choice of black china, opal china, or clear, crystal glass bowls.

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Write for new illustrated catalog describing complete Palmer line of soap dispensing equipment, janitor and sanitary supplies, maintenance materials and equipment.

lies alone or together. This synergistic effect with the various phenols manifests itself all along the pH scale from the very acidic to the most basic, thus allowing weaker, safer, and less costly amounts of the various phenols to be used on the acid side where such are applicable, as well as producing germicidal mixtures with a wide variety of alkalies which may also serve as practical detergents on the basic side.

This synergistic effect is a gradual one, showing itself over the entire pH range from 1-14. It is very marked on the acid side, decreasing slowly as the alkaline range is entered, and continuing to manifest itself in a practical manner until a pH of around 9-10 is reached. At this pH range the synergistic action of soap on the phenol begins to give way to the synergistic action of soap on alkali. There is, therefore, reached the point where there is not sufficient improvement in the phenol germ-killing powers due to the added soap to overcome the reduced effect of the alkali or the phenol. Thus, in the pH range of 9-10, there may appear a minimum in germicidal potency, which potency rapidly increases, however, due to the soap-alkali combination, which immediately begins to play its important synergistic role, as the pH rises from 10-12 or more. At pH above 12, the germicidal power of the increased OH ions is felt, and this too is aided by the presence of soap up to the range between pH 12 and 14 (the exact pH varying naturally with the temperature and type of organisms used), where the alkali alone is sufficiently lethal to kill all the bacteria present. The following chart gives a recapitulation of these facts in more concise form.

Chart showing germicidal and synergistic action of acids, phenols, alkalies, and soaps, alone and in combination, covering pH range 1-14.

Ingredients			*Approximate pH Range of Activity*	*Cause of Germicidal Action*
	Acid		1.0- 2.5	H ions and the specific acidic radical.
Phenol	Acid		2.5- 5.5	Phenolic radicals alone, and catalyzed by H ions.
Phenol			5.5- 7.0	Phenolic radicals.
Phenol		Soap	7.0- 8.5	Phenolic radicals synergized by soap, surface tension effects, and increased solubility.
Phenol	Alkali	Soap	8.5-10.0	Phenolic radicals activity lowered by alkali but increased by soap.
	Alkali	Soap	9.0-12.5	OH ions catalyzed or synergized by soap.
	Alkali		12.5-14.0	OH ions alone.

Thus in the pH range of 8.5-10.5, by a proper combination of soap, alkali, and phenol (both as to amount and kind) one can reduce to a minimum this retarding action of alkalies on phenols, and thereby obtain mixtures suitable for detergent purposes which are, at the same time, definitely bactericidal. Such mixtures are of more interest today than a few years ago, because, with the introduction of the "newer detergents," such as alkali salts of the sulphated fatty alcohols, sulphated fatty acid esters and amides, etc., (Bertsch, 1933; Bray, 1933; Briscoe, 1932; Duncan, 1934; Götte, 1933; Guenther, 1933; Janistyn, 1934; Killeffer, 1933; Kritchevsky, 1933; Lederer, 1932; Lehner, 1933; Neusslein, 1931; Schrauth, 1931, 1933; Standlinger, 1933; Sweet, 1934; Tyler, 1934; Welwart, 1933) it has become possible to cleanse even on the acid side. These facts have changed our previous ideas, to some extent, as to the primary cause of detergent action. Until a few years ago it was thought that the optimum pH for detergency was around 10.7; on the other hand, during the past few years, work carried out in Europe has shown quite clearly that this optimum range is perhaps slightly less alkaline and that a pH of around 9.5 is more nearly the true optimum. This has been shown by Chamberlain (1935) and by Speakman (1935) in England, and on the continent by German workers (Götte, 1933), all of whom have made rather extensive studies in this field of detergent action.

Since there exist wide variations in the methods for testing detergent power, and as the criteria for optimum detergency vary appreciably, there is ample room for differences of opinion as to the optimum pH value. This may well account for the fact that some claim a pH of 10.7, while others find 9.5 to be the optimum. It is well within reason to expect such variations, and possibly a range somewhere between pH 9. and 11 will actually be needed, depending upon the specific process involved, the type of material being cleaned, and the type and amount of soil to be removed.

Thus a new field of possibilities is being opened up, in connection with which the above presented data should be of interest and find application.

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Good REBUILT MACHINERY *for* SOAP MANUFACTURERS

H-A 1500, 3000, 4000, 5000 lbs. capacity. Steam Jacketed Crutchers.
Dopp Steam Jacketed Crutchers, 1000, 1200, 1500 lbs. and 800 gals. capacity.
Ralston Automatic Soap Presses.
Scouring Soap Presses.
2, 3, 4, 5 and 6 roll Granite Toilet Soap Mill.
H-A 4 and 5 roll Steel Mills.
H-A Automatic and Hand-Powered slabbers.
Proctor & Schwartz Bar Soap Dryers.
Blanchard No. 10-A and No. 14 Soap Powder Mills.
J. H. Day Jaw Soap Crusher.
H-A 6, 8, and 10 inch Single Screw Plodders.
Allbright-Nell 10 inch Plodders.
Steel Soap frames, all sizes.
Steam Jacketed Soap Remelters.
Automatic Soap Wrapping Machines.
Glycerin Evaporators, Pumps.
Proctor & Schwartz large roll Soap Chip Dryers complete.
Doll Steam Jacketed Soap Crutchers, 1000, 2000 and 1350 lbs. capacity.
Ralston and H-A Automatic Cutting Tables.
Soap Dies for Foot and Automatic Presses.
Broughton Soap Powder Mixers.
Williams Crutcher and Pulverizer.

Good REBUILT MACHINERY *for* Sanitary Product Manufacturers

Empire State, Dopp & Crosby Para Presses.

Filling and Weighting Machines for Flakes, Powders, etc.

Sperry Cast Iron Square Filter Presses, 10, 12, 18, 24, 30 and 36 inch.

Perrin 18 inch Filter Press with Jacketed Plates.

Gedge-Gray Mixers, 25 to 6000 lbs. capacity, with and without Sifter Tops.

Day Grinding and Sifting Machinery.

Schultz-O'Neill Mills.

Day Pony Mixers.

Gardiner Sifter and Mixer.

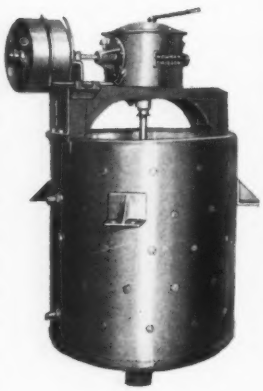
Day Talcum Powder Mixers.

All types and sizes—Tanks and Kettles.

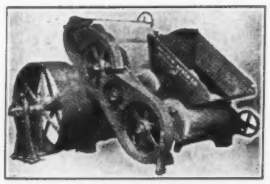
National Filling and Weighing Machines.

New SOAP CRUTCHERS

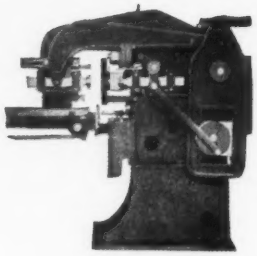
This Newman brand new, all steel steam jacketed soap crutcher. Will crutch any kind of soap. We also build another crutcher especially adapted for laundry soap in addition to other new soap machinery such as frames, cutting tables, etc. Send for complete list.



Rebuilt *Specials!*



H-A SOAP MILL
This 4-roll granite toilet soap mill is in A-1 shape. Latest and largest size rolls.



4 JONES AUTOMATIC combination laundry and toilet soap presses. All complete and in perfect condition.

All used equipment rebuilt in our own shops and guaranteed first class condition.

Send us a list of your surplus equipment—we buy separate units or complete plants.

NEWMAN TALLOW & SOAP MACHINERY COMPANY 1051 W. 35th St. CHICAGO

Our Forty Years Soap Experience Can Help Solve Your Problems

CLASSIFIED ADVERTISING

Classified Advertising—All classified advertisements will be charged for at the rate of ten cents per word, $2.00 minimum, except those of individuals seeking employment where the rate is five cents per word, $1.00 minimum. Address all replies to Classified Advertisements with Box Number, care of *Soap*, 254 West 31st St., New York.

Note: All advertisements must be in publisher's hands by the first of the month for that month's issue.

Positions Wanted

Soapmaker with 36 years' experience in Europe and America. Can make the following articles: Down boiled, semi-boiled, and cold process soaps; textile, soap powder, scouring bar and powder; and many other soaps from the kettle to the frame in the most economical way. Address Box No. 619 care *Soap*.

Superintendent and Soapmaker—Can make and analyze all kinds of soap and soap material. Address Box No. 627, care *Soap*.

Sanitary Specialties Chemist—10 years' experience manufacturing all kinds of disinfectants, insecticides, soaps, detergents, deodorants, polishes, cleansers, etc., desires position as Superintendent or Assistant Superintendent of large plant. Employed, but available about November 15th. Age 42, single, B.S., 1920, C. I. T. Address Box No. 620, care *Soap*.

Sales Manager—Seven years personal sales promotion experience opening new accounts for national concern, metropolitan New York territory, selling soaps, powders and detergents to hotels, institutions, hospitals, restaurants. Large personal following. Self-starter. Giltedge references. Present employed. (Minimum Salary $5,000). P. O. Box 34, Woodhaven, N. Y.

Chemist—experienced in soaps, oils, fats, foods, cosmetics, and disinfectants. Desires position in research, control, analytical or production laboratory. Address Box No. 604, care *Soap*.

Chemist—South American, 14 years chief chemist, plant superintendent of large company (U.S.A.) in charge of manufacturing department making all kinds of soaps, disinfectants, insecticides, polishes, floor waxes, wants new connection with established company in Spanish speaking America, preferably Mexico City. Best references to character and ability. Address Box No. 615, care *Soap*.

SOAP MACHINERY

Every item shipped from our shops at Newark, N. J., is thoroughly overhauled and rebuilt before shipment.

SPECIALS

1—Soap Chip Dryer, 1200 lb.
2—Dopp 650 gal. Steam Jacketed Kettles.
1—Dopp 1200 lb. Steam Jacketed Crutcher.
1—Hershey 1000 lb. Horizontal Jacketed Crutcher.
1—1000 lb. All Steel Soap Powder Mixer.
2—Holmes & Blanchard 24" and 36" 4 cage Disintegrators, for grinding soap powder—no screens, no plugging.

25—Soap Frames, 60"x45½"x14", with trucks.
6—Plodders, Houchin, Rutschman, 4", 4½" double screw, 6", 8", 10".
14—Filter Presses, 42"x42" to 12"x12".
8—Granite Mills, 3 and 4 roll, 12", 18" and 24".
15—Horizontal Mixers, Jacketed and Plain, 15 gal. to 1000 gal.

MISCELLANEOUS—Kettles, Mixers, Pony Mixers, Powder Fillers, Tube Fillers, Labelers, Soap Presses, Soap Wrappers, Tanks, Boilers, Pumps, etc.

Send for Latest Bulletin.

CONSOLIDATED

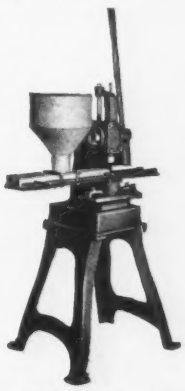
PRODUCTS COMPANY, INC.

15-21 Park Row, N. Y. C. BArclay 7—0600

We buy your idle Machinery—Single items or entire plants.

This Versatile Press

is good for a variety of uses besides making para blocks. Soap, for instance, can be pressed with suitable dies to produce as fine looking cakes as come from the most expensive automatic press. Or, for instance, if you bottle some of your liquid mixtures, the Huber hand lever press can be equipped with little expense to cap the bottles. For purposes such as this it has a considerable advantage over the foot press, as the pressure of each stroke is subject to sensitive hand control.



Anything that requires compression, within the limitations of manual power, can be handled in these presses. Truly they are "all-purpose" machines, invaluable to the plant with diversified output and multiplied production problems.

Available in style illustrated or in bench type.

HUBER MACHINE CO.

265 46th St., Brooklyn, N. Y.

MECHLING'S
SILICATE OF SODA

ESTABLISHED 1869

MECHLING BROS. CHEMICAL COMPANY

PHILADELPHIA • CAMDEN, N.J. BOSTON, MASS.

A New Source For

TRI-SODIUM PHOSPHATE

The Tidewater division of the American Chemical Paint Company has developed and now **manufactures** a new type free-flowing Tri-Sodium Phosphate which is furnished in standard T.S.P. Containers. A sample and a quotation on your requirements will be furnished on request.

TRISILA

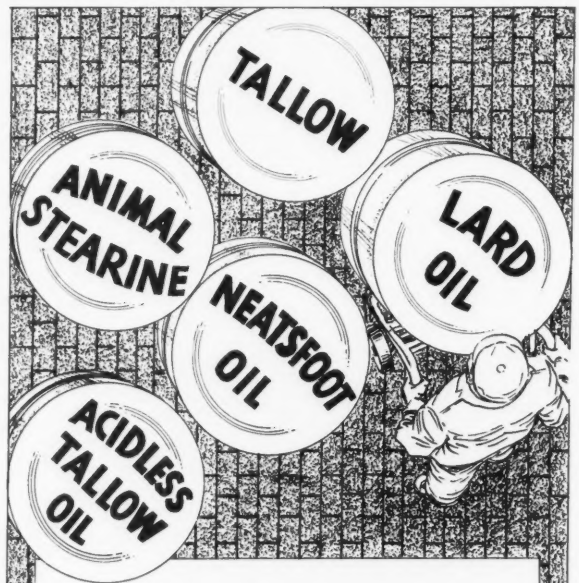
A new alkaline detergent for use with all soaps and cleansers is also manufactured by this company. Samples and prices on request.

CHEMICALS ACP PROCESSES

AMERICAN CHEMICAL PAINT CO.

TIDEWATER DIVISION

New Castle, Delaware

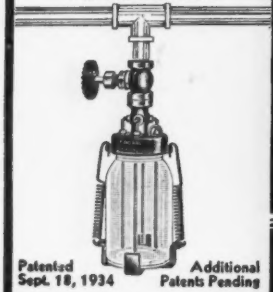


for fine quality and exact grading, get in touch with us.

INDEPENDENT MANUFACTURING CO.

Bridesburg P. O. Philadelphia, Pa.

FUMERAL PRESSURE SYSTEM CONNECTS TO STEAM OR AIR PRESSURE LINE



Patented Sept. 18, 1934 — Additional Patents Pending

FUMERAL PRESSURE SYSTEM

Does a Thorough Job..... INEXPENSIVE — EFFICIENT — ECONOMICAL

● The effectiveness of any good spray solution depends upon the efficiency of your spray equipment. Wet sprays are not efficient. It takes a minimum of 30 lbs. (steam or air pressure) to diffuse spray solutions. THE FUMERAL INSTANT DIFFUSER instantly charges the entire room. No insects, flies, cockroaches, ants, moths or germs have a chance to escape. ● Connects to any steam or air line. Turn on the valve and in 4 minutes the operation is completed. No electricity to fuss with. No moving parts. Nothing to get out of order. FUMERALS stay sold. Simple — Inexpensive — More Efficient and Most Economical. Anyone can install it. Various brands of insecticides, germicides, bactericides, deodorants, disinfectants and perfumes all work well in the FUMERAL INSTANT DIFFUSER.

FUMERAL

REGISTERED TRADE MARK

FUMERAL COMPANY, RACINE, WIS.

Manufacturers of Stationary and Portable Diffusers

Sanitary Consulting Engineers

Factory Superintendent or Manager—open for position. Has expert knowledge of manufacture of soaps. Moderate salary. Address Box No. 603, care *Soap.*

Laboratory Assistant—Young man, 25, B.S., major in chemistry, two years' general laboratory experience, desires position in chemical laboratory. Willing to travel. Address Box No. 625, care *Soap.*

Soapmaker and Chemist—whose past record and experience qualify him for meeting highest technical requirements, desires steady employment with progressive concern. Address Box No. 623, care *Soap.*

Insecticides—Plant superintendent and chemist who has had twenty years' experience in manufacturing insecticides and ten years' experience with biological and chemical control of leading fly spray manufacturer, seeks new connection. Highest references. Address Box No. 618, care *Soap.*

Positions Open

Detergent Chemist—Man wanted with experience in the chemistry of detergents, preferably a Ph.D., with actual commercial experience in this field. Communicate with Box No. 609, care *Soap.*

A Prominent Manufacturer of liquid soaps, disinfectants, deodorizing cakes, etc., has an opening for a dependable sales representative. Address Box No. 617, care *Soap.*

Miscellaneous

Soap Manufacturers and Others—who would like to make high class pure household soaps by new revolutionary method, in less time and cost than Cold Process, and indistinguishable from Boiled, should apply for samples and particulars. No other plant required. One firm's output has already increased from 10 to 60 tons weekly in six months. Address Box No. 628, care *Soap.*

For Sale—Soap factory on Pacific Coast with six large kettles and power plant, now making bulk chips and powders and limited amount of toilet soap. Complete oil refinery connected with factory. Railroad siding and ample storage facilities. Can be purchased at a bargain. Owner desires to retire from business. Address Box No. 589, care *Soap.*

NEW AND REBUILT SOAP MACHINERY

SPECIAL
1 Lot of 50, 1200-lb. Soap Frames in Excellent Condition.

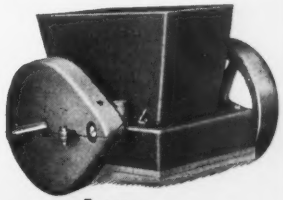
1—Jones Automatic Type "A" Soap Press for toilet and laundry soap.
3—3 and 5 Roll Steel Mills
1—10" Houchin-Aiken Plodder
1—Automatic Power Cutting Table
1—Broughton Mixer, jacketed
2—10A Blanchard Mills
3—Soap Presses, Foot and Power
6—Filter Presses, sizes 6" to 36"
6—Granite Stone Mills, 2, 3, and 4 rolls
2—Glycerine Evaporators, double and triple effect.
4—Jacketed Vertical Crutchers
2—1,500 lb. Horizontal Crutchers
2—Hand Power Slabbers
2—Hand Power Cutting Tables
3—Houchin Chippers, Belt Driven
600 and 1,200 lb. Frames, Kettles, Pumps, Tanks, Filter Presses, Wrapping Machines, Tube Fillers, Closers, Crimpers, Dry Powder Mixers, Pulverizers, Grinders, Amalgamators, Mixers, etc.

Send for Complete List (Bulletin No. 15)
WE BUY AND SELL FROM SINGLE ITEMS TO COMPLETE PLANTS.

STEIN-BRILL CORPORATION
183 VARICK STREET NEW YORK, N. Y.
Phone: WAlker 5-6892-3-4 Cable Address: "BRISTEN"

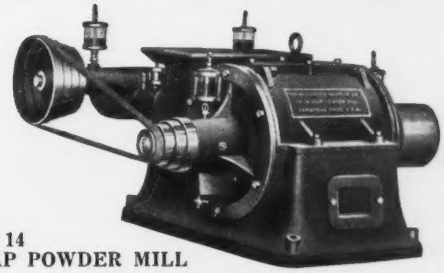
BLANCHARD

SOAP POWDER MACHINERY



NO. 9 CRUSHER

NO. 10-A SOAP POWDER MILL



NO. 14 SOAP POWDER MILL

WRITE FOR OUR DESCRIPTIVE CIRCULARS

THE BLANCHARD MACHINE COMPANY
14 STATE ST. CAMBRIDGE, MASS., U. S. A.

F. & S.

Quality Colors *for* TOILET SOAPS LIQUID SOAPS

TOILET PREPARATIONS

Long experience enables us to produce colors for all types of soaps.

If you have a shade you want matched send us a sample. We have complete facilities for matching.

Liquid soap colors a specialty—send for samples of F. & S. greens and ambers.

FEZANDIE & SPERRLE, Inc.
205 FULTON STREET
NEW YORK, N. Y.
Import—Manufacture—Export

We manufacture a complete line of high quality waxes for the jobbing trade, including no-rubbing liquid wax, regular type liquid wax, powdered wax, paste wax and also furniture polish. These products can be supplied in bulk, packaged under the Windsor label or with your own label which we supply.

WINDSOR WAX COMPANY
53 PARK PL. New York N.Y.
factory
611 Newark St. Hoboken N.J.
Manufacturers of
WAX PRODUCTS EXCLUSIVELY

NRA MEMBER U.S. WE DO Our Part

"MOPCO" 65%
BOILED DOWN COTTONSEED SOAP

ALSO SPOT AND FUTURE SHIPMENTS

RAPESEED OIL
TEASEED OIL
HEMPSEED OIL

FISH OIL FATTY ACIDS

MURRAY OIL PRODUCTS CO.
INCORPORATED
21 WEST ST., NEW YORK

SHAVING CREAM

TOOTH PASTE

In
Bulk
Or

Under Your Own Name in our special tubes and cartons. These are lithographed with a blank space for *YOUR* label. In any quantity from one gross up.

GEO. A. SCHMIDT CO.
INCORPORATED
Manufacturers of SOAPS *of Every Description*
236-238 West North Avenue.
Chicago.

The first of a new series of uniform reports on production, distribution, consumption and stocks of rosin and turpentine has just been issued by the U. S. Dept. of Agriculture. The report shows the soap industry to be the second largest consumer of rosin, with a total consumption of 283,465 bbls. in the 1934-35 season.

The constitutionality of the California Fair Trade Act has been upheld in a recent decision by Judge I. L. Harris of the Superior Court in the case of the Emerson Drug Co. vs. Weinstein Co. The court ruled that if the sale of articles imported into the state can be entirely prohibited, such sale may also be restricted.

Advertising rebates and allowances for window and counter displays aggregating $1,177,327 have been paid to Liggett Drug Co. by suppliers over the past year and a half, it was disclosed to the Congressional investigating committee headed by Rep. Wright Patman at a recent hearing in Washington. Over that same period the drug company spent $959,174 for advertising. Some 104 suppliers shared in making these rebates, according to W. C. Watt, vice-president of the Liggett Co.

Exports of liquid household insecticides from United States during the month of July, 1935, totaled 605,572 lbs., worth $91,820, with powdered and paste insecticides totaling 36,959 lbs., worth $10,603.

T. G. COOPER & CO.
INC.
47 North Second Street
Philadelphia

•

Import and Spot Lots of

Cresylic Acid
Commercial Olive Oil
Olive Oil Foots
Palm Oil
Castor Oil
Rapeseed Oil
Japan Wax
Caustic Potash
Carbonate of Potash
Bicarbonate of Potash

We announce development of new type soap colors

PYLAKLORS

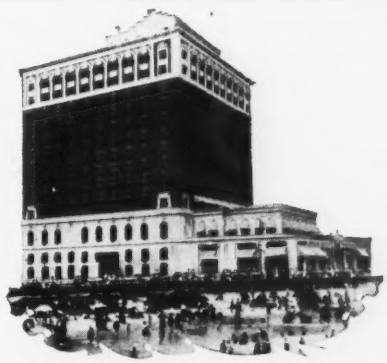
They have good fastness to alkali, light, tin, ageing.

The following shades are already available:

Bright Green	Dark Brown
Olive Green	Palm Green
Yellow	Golden Brown
True Blue	Violet

It will pay you to send for testing samples.

PYLAM PRODUCTS CO., INC.
Manufacturing Chemists, Importers, Exporters
799 Greenwich St. New York City
Cable Address: "Pylamco"



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Enjoy a New Hotel That Meets Every Convention Need. On the Boardwalk in the Heart of all Atlantic City Activities and Prepared to handle the Affairs of your Convention or Conference with Ample Facilities to Accommodate all.

Full and Complete Hotel Service. Spacious Sun Decks—Swimming Pool—Bar and Grill

For further information and special rate plan write to

The President
ATLANTIC CITY, NEW JERSEY

Where to buy

RAW MATERIALS AND EQUIPMENT

for the Manufacture of Soaps and Sanitary Products

NOTE: This is a classified list of the companies which advertise regularly in SOAP. It will aid you in locating advertisements of raw materials, bulk and private brand products, equipment, packaging materials, etc., in which you are particularly interested. Refer to the Index to Advertisements, on page 128, for page numbers, *"Say you saw it in SOAP."*

ALKALIES

American Cyanamid & Chemicals Corp.
Columbia Alkali Co.
T. G. Cooper & Co.
Dow Chemical Co.
Eastern Industries
Hooker Electrochemical Co.
Innis, Speiden & Co.
Niagara Alkali Co.
Solvay Sales Corp.
Jos. Turner & Co.
Warner Chemical Co.
Welch, Holme & Clark Co.

AROMATIC CHEMICALS

American-British Chemical Supplies
Compagnie Parento
Dodge & Olcott Co.
Dow Chemical Co.
P. R. Dreyer, Inc.
E. I. du Pont de Nemours & Co.
Felton Chemical Co.
Fritzsche Brothers, Inc.
Givaudan-Delawanna, Inc.
Magnus, Mabee & Reynard, Inc.
Merck & Co.
Monsanto Chemical Co.
Naugatuck Chemical Co.
Schimmel & Co.
Solvay Sales Corp.
A. M. Todd Co.
Ungerer & Co.
Van Ameringen-Haebler, Inc.

BULK AND PRIVATE BRAND PRODUCTS

An-Fo Manufacturing Co.
Baird & McGuire, Inc.
Clifton Chemical Co.
Davies-Young Soap Co.
Eagle Soap Corp.
Federal Varnish Co.
Fuld Bros.
Harley Soap Co.
Hysan Products Co.
Hull Co.
Koppers Products Co.
Kranich Soap Co.
Palmer Products
Philadelphia Quartz Co.
John Powell & Co.
Geo. A. Schmidt & Co.
White Tar Co.
Windsor Wax Co.

CHEMICALS

American-British Chemical Supplies
American Cyanamid & Chemicals Corp.
Columbia Alkali Co.
T. G. Cooper & Co.
Dow Chemical Co.
E. I. du Pont de Nemours & Co.
Eastern Industries
General Chemical Co.
Grasselli Chemical Co.
Hooker Electrochemical Co.
Industrial Chemical Sales Co.
Innis, Speiden & Co.
Mechling Bros. Chemical Co.
Merck & Co.
Monsanto Chemical Co.
Niagara Alkali Co.
Philadelphia Quartz Co.
Solvay Sales Corp.
Standard Silicate Co.
Jos. Turner & Co.
Victor Chemical Works
Warner Chemical Co.
Welch, Holme & Clark Co.

COAL TAR RAW MATERIALS

(Cresylic Acid, Tar Acid Oil, etc.)

American-British Chemical Supplies
Baird & McGuire, Inc.
Barrett Co.
T. G. Cooper & Co.
Innis, Speiden & Co.
Koppers Products Co.
Monsanto Chemical Co.
Reilly Tar & Chemical Co.
White Tar Co.

COLORS

Fezandie & Sperrle
Pylam Products Co.

CONTAINERS and CLOSURES

American Can Co. (Tin Cans, Steel Pails)
Anchor Cap & Closure Corp. (Closures & Bottles)
Cin-Made Corp. (Paper Cans)
Continental Can Co. (Tin Cans)
Ellis Davidson Co. (Perfume Disseminators)
Hinde & Dauch (Corrugated Fibre Products)
Maryland Glass Corp. (Bottles)
National Can Co. (Tin Cans)
Owens-Illinois Glass Co. (Bottles)
Wilson & Bennett Mfg. Co. (Steel Pails and Drums)

DEODORIZING BLOCK HOLDERS

Cin-Made Corp. (Paper)
Clifton Chemical Co.
Eagle Soap Corp.
Fuld Bros.
Hysan Products Co.
Palmer Products, Inc.

ESSENTIAL OILS

Compagnie Parento
Cox, Aspden & Fletcher
Dodge & Olcott Co.
P. R. Dreyer Inc.
Fritzsche Brothers, Inc.
Leghorn Trading Co.
Magnus, Mabee & Reynard, Inc.
Schimmel & Co.
A. M. Todd Co.
Ungerer & Co.
Van Ameringen-Haebler, Inc.

(*Continued on page* 126)

PROFESSIONAL DIRECTORY

PEASE LABORATORIES, Inc.
Chemists, Bacteriologists, Sanitarians
39 West 38th Street
New York
Food, Drug and Cosmetic Problems—Compliance with Official Requirements—Meeting New and Anticipated Competitions with Improved and New Products

H. A. SEIL, Ph.D E. B. PUTT, Ph.C., B.Sc.
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Analytical and Consulting Chemists
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Analytical and Consulting Chemists
Members Association of
Consulting Chemists and Chemical Engineers
130 Cedar Street New York City

CONSULTANTS
offering their services to manufacturers of soaps and sanitary specialties should apprise the industry of their facilities through this professional card department. SOAP reaches 2,200 manufacturers who need help of a professional nature.

KILLING
strength of Insecticides
by PEET GRADY METHOD
(Official I. & D. code method) and
PYRETHRINS in PYRETHRUM FLOWERS
(by Gnadinger's Method)
We raised and killed more than 1 million flies in the last 2 years
ILLINOIS CHEMICAL LABORATORIES, INC.
75 E. WACKER DRIVE CHICAGO, ILL.

COST SYSTEMS
Designed and installed for Soap Manufacturers and allied industries. Service in—Cost Analysis—Federal Taxation—Audits and Financial Statements.
TWENTY-FIVE YEARS' EXPERIENCE
LOUIS J. MUEHLE & COMPANY
CERTIFIED PUBLIC ACCOUNTANTS
DES MOINES IOWA

Skinner & Sherman, Inc.
246 Stuart Street, Boston, Mass.
Bacteriologists and Chemists
Disinfectants tested for germicidal value or phenol coefficient by any of the recognized methods.
Research—Analyses—Tests

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Consultation *Formulas*
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Entomological testing by the Peet-Grady method, and chemical examination of insecticides are available.
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RAW MATERIAL AND EQUIPMENT GUIDE

(*Continued from page* 124)

NOTE: This is a classified list of the companies which advertise regularly in SOAP. It will aid you in locating advertisements of raw materials, bulk and private brand products, equipment, packaging materials, etc., in which you are particularly interested. Refer to the Index to Advertisements, on page 128, for page numbers, *"Say you saw it in SOAP."*

MACHINERY

Battle Creek Wrapping Machine Co. (Packaging Machinery)
Blanchard Machine Co. (Soap Powder)
Ertel Engineering Corp. (Filters, Mixers, Bottle Fillers)
Anthony J. Fries (Soap Dies)
Houchin Machinery Co. (Soap Machinery)
Huber Machine Co. (Soap Machinery)
International Nickel Co. (Monel Metal)
R. A. Jones & Co. (Automatic Soap Presses and Cartoning Machinery)
Package Machinery Co. (Packaging)
Proctor & Schwartz (Dryers)
C. G. Sargent's Sons Corp. (Dryers)
Stokes & Smith Co. (Packing Machinery)
U. S. Bottlers Machinery Co. (Bottle Filling and Cleaning)

MACHINERY, USED

Consolidated Products Co.
Newman Tallow & Soap Machinery Co.
Stein-Brill Co.

MISCELLANEOUS

Anchor Cap & Closure Corp. (Metal Caps)
T. G. Cooper & Co. (Waxes)
Dobbins Mfg. Co. (Pails, Mop Wringers, etc.)
Exterminating Materials Co.
General Naval Stores Co. (Pine Oil-Rosin)
Hercules Powder Co. (Pine Oil and Rosin)
Industrial Chemical Sales Co. (Decol. carbon, Chalk)
Innis, Speiden & Co. (Fumigants and Waxes)
Murray & Nickell Mfg. Co. (Moth Proofing Liquid)
Pylam Products Co. (Lathering Agent)
Rohm & Haas Co. (Insecticide Base)

OILS AND FATS

T. G. Cooper & Co.
Eastern Industries
Independent Mfg. Co.
Industrial Chemical Sales Co.
Leghorn Trading Co.
Murray Oil Products Co.
Newman Tallow & Soap Machinery Co.
Theobald Animal By-Products Refinery
United Africa Co.
Welch, Holme & Clark Co.

PARADICHLORBENZENE

Dow Chemical Co.
E. I. du Pont de Nemours & Co.
Hooker Electrochemical Co.
Merck & Co.
Monsanto Chemical Co.
Niagara Alkali Co.
Solvay Sales Corp.
Jos. Turner & Co.

PERFUMING COMPOUNDS

Compagnie Parento
Dodge & Olcott Co.
P. R. Dreyer, Inc.
Felton Chemical Corp.
Fritzsche Brothers, Inc.
Givaudan-Delawanna, Inc.
Magnus, Mabee & Reynard, Inc.
Schimmel & Co.
Ungerer & Co.
Van Ameringen-Haebler, Inc.

PETROLEUM PRODUCTS

O'Connor & Kremp
Sherwood Petroleum Co.
L. Sonneborn Sons.

PYRETHRUM AND DERRIS PRODUCTS

Insect Flowers and Powder, Pyrenthrum Extract, Derris Products

An-Fo Mfg. Co. (Extract)
R. J. Prentiss & Co.
Derris, Inc.
McCormick & Co.
McLaughlin, Gormley, King Co.
Nico-Dust Mfg. Co.
John Powell & Co.
Sherwood Petroleum Co.

SOAP DISPENSERS

Clifton Chemical Co.
Eagle Soap Corp.
Fuld Bros.
Palmer Products

SODIUM SILICATE

General Chemical Co.
Grasselli Chemical Co.
Mechling Bros. Chemical Co.
Philadelphia Quartz Co.
Standard Silicate Co.

SPRAYERS

Breuer Electric Mfg. Co.
Dobbins Mfg. Co.
Fumeral Co.
Hudson Mfg. Co.
Lowell Sprayer Co.

TRI SODIUM PHOSPHATE

American Chemical Paint Co.
General Chemical Co.
Grasselli Chemical Co.
Victor Chemical Works
Warner Chemical Co.

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for SALE or LEASE

Buy or rent this modern, fully equipped soap factory located within 100 miles of four leading Eastern Seaboard cities. Consists of office and two plant buildings, 95,000 sq. ft. factory floor space, with r.r. siding. Equipped with six large kettles, one medium size and one small one (6,000 gal.), twelve storage tanks, 100 soap frames, four toilet soap mills, modern soap flaking machinery, plodders, presses, cutter, slabber, etc. No other soap plant in locality. Raw materials nearby. Can be purchased or leased from the owners on an attractive basis but machinery will not be sold separately. Communicate with

Factory Owner : Box No. 450
Care SOAP, 254 W. 31st St., New York

What Non-Saponifiable Content in
OLIVE OIL FOOTS?

●

YOU don't need to go thumbing through chemical dictionaries. The answer is in your BLUE BOOK. Complete tables give: Approximate Constants of Common Soap Oils; Acidic Content of Common Soap Oils; Percentage of Alkali Necessary to Saponify Common Soap Oils; Comparative Values of Caustic Soda Solutions.

●

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METAL POLISH POWDER

in bulk

Simply mix with water and distribute as a stable liquid polish, or distribute the powder and let your customers add the water.

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305 Washington Street
Brooklyn, N. Y.

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New Soap Markets for You!

All textile mills, dyers, finishers and printers in the United States and Canada are fully reported in the New DAVISON'S TEXTILE BLUE BOOK and Dockham's American Report and Directory. 69th year.

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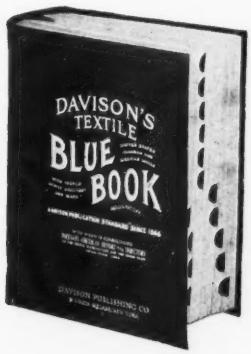

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BRADFORD PENN REFINING CORP.
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Clarendon, Penna.

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HINDE & DAUCH

★ *Corrugated Shipping Boxes*
Selmor Display Stands

PLANTS IN PRINCIPAL CITIES

Here and There

FROM the superintendent of a small soap plant who delights in checking up on the products of his larger competitors, we have just received some rather disquieting reports on the quality of several of the better-known nationally advertised toilet soaps. The lather of one has gone, the second turns dark all too quickly, the texture of the third is crumbly, and the fourth,—famous for two decades,—shows up with brown spots. And to add the crowning insult, he offers any or all a head-start of two days at the kettle, and vows he will beat them to market with a better soap, one which will have none of the defects enumerated above.

—— ♦ ——

And with the above challenge thrown into the teeth of the industry, we offer our services as general manager, referee, and water boy for the First Great American Soap Derby. Entries should be filed promptly.

—— ♦ ——

And while we are on the subject of entries, don't forget your entry in the SOAP subscription renewal derby. Do not put that subscription renewal notice aside,—send it in now with your check so that you will be sure not to miss any issues or your free copy of the 1936 Blue Book when it is published.

—— ♦ ——

In this issue, we publish the last of a series of four articles on the development and marketing of new products, and the modernization of old ones, by Ralph H. Auch. After reading them over carefully, we have come to the conclusion that these articles have comprised one of the most valuable compilations of practical information which we have had the privilege to publish in many a moon. To those readers who have missed reading any of the four articles, we suggest that they go to their back issues and read. Whether a new or modernized product is being considered or not, the good common sense and practical facts presented are worth absorbing.